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Contributors, subscribers and readers will find important information on the sixteenth advertising page following the reading matter.

VOL. XV

SEPTEMBER, 1917

Number 9

## THE QUOTA OF DOCTORS FOR THE ARMY.

There are about 150,000 physicians listed in medical directories. Deducting from these 50,000 who are not in practice, or are physically incompetent, leaves 100,000 doctors available. Of this number the Surgeon-General requires 20,000, or one-fifth of the active practitioners as officers in the Medical Reserve Corps of the Army. This means that one out of every five physicians in California is needed in the Army and *must go at once*. Every reader of this page is urged most seriously to see that the profession in his vicinity is represented at least in proportion.

The lowest commission offered a doctor is First Lieutenant, which draws in pay \$2000 a year; Captains receive \$2400 and Majors \$3000. The cost of equipment is about \$150 to \$175, according to the desires of the individual. The individual outlay when once in the service is principally expenditure for food, which averages about \$25 a month.

The need of doctors is not alone for the mobile army but also in concentration camps, evacuation hospitals, base hospitals and on transports. It is of decided advantage to volunteer your services and receive the benefit of the very necessary training accorded physicians in medical training camps. It is a safe assumption that for those who receive such training and show their aptitude for the service, advancement will be rapid.

Applications for commissions in the Medical Reserve Corps will be sent to you by your Local Examining Board or by the Editor of this paper. Apply for your commission *now*. Your country needs you.

## DANGER FROM BOTULISM.

In the present national crisis one of the chief topics of interest to the average citizen has been the rapidity with which staple articles of diet have risen in price until they are almost beyond the reach of the small wage earner. In order to combat the "high cost of living" and to conserve such foods as can be shipped to our allies in Europe, there has been a widely advertised propaganda, urging that all who have access to the fresh material should provide for the coming winter by canning vegetables and fruits at home; and the leading newspapers have co-operated with the authorities by publishing detailed descriptions of how the canning process should be carried out.

It is probable that much larger quantities of fruits and vegetables are being canned at home this year than ever before, and that many persons will be depending upon home-canned foods who have formerly used only commercially-canned products. It is urgent, therefore, that the medical profession should be alert to the danger which may arise from poisoning from foods which have been improperly preserved.

One of the most important types of food poisoning in California in recent years is due to the toxin of the *Bacillus botulinus*, which, as has been shown by Dickson,<sup>1,2</sup> may be produced in home-canned vegetables and fruits. The majority of human cases of botulism have followed the ingestion of home-canned beans and corn, but cases have been described in which apricots and asparagus were at fault, and Dickson's experimental work has shown

<sup>1</sup> Dickson, E. C. Botulism, An Experimental Study. Jour. Amer. Med. Assoc., 1915. LXV, 492.

<sup>2</sup> Dickson, E. C. Botulism, Its Occurrence in California. Cal. State Jour. of Med., 1916. XIV, 143.



that pease, artichokes and peaches must also be considered with suspicion.

The great danger of poisoning from botulism lies in the fact that the toxin of the *B. botulinus* may be present in vegetables and fruits in sufficient amounts to cause death, without producing any marked change in the appearance of the food. There is usually a certain amount of fermentation and there may be a slightly "spoiled" odor, somewhat like butyric acid, but the vegetable or fruit may not be softened or discolored, and there are at least three fatal cases on record in which the housewife merely tasted the contents of jars of vegetables to determine whether they were spoiled. The taste is sharp or slightly rancid, but has been described as "not unpleasant" in cases where string beans were served as salad, and apricots were served as dessert. Heating the toxin to the boiling point will destroy it, and it is therefore important that no home-canned vegetables or fruits should be tasted until they have been boiled.

Symptoms of poisoning usually occur within thirty-six hours after the food has been eaten, although they may appear within twelve hours. There may be initial gastro-intestinal disturbances, with burning in the stomach, nausea, vomiting and diarrhoea, but gastro-intestinal irritation is of short duration, and obstinate constipation soon follows. Among the earliest symptoms are disturbances of vision, dilatation of the pupils, loss of accommodation, double vision due to paralysis of the extrinsic muscles of the eyes, and blepharoptosis. Difficulty in swallowing and in speech soon follow, due to paralysis of the muscles of the pharynx and larynx. The mouth and skin are dry, the tongue coated, and the flow of saliva is inhibited. The patients suffer greatly from the pressure of thick, tenacious mucus in the pharynx which they are unable to raise. Strangling spells brought on by attempts to swallow or to cough may be very severe. There is marked general weakness, usually without true paralysis of the skeletal muscles, and loss of muscular co-ordination. The temperature is usually normal or sub-normal, the pulse may be slow at first but soon becomes rapid, and mentality is clear. The duration of a fatal illness is usually from about four to twelve days, and when recovery occurs the convalescence is slow and tedious. There are seldom any severe permanent disabilities in patients who have recovered. When death occurs it is usually from respiratory or cardiac failure, the course and termination of the illness being that of bulbar paralysis.

The majority of recorded cases have occurred in California and the mortality has been over 60 per cent. In a number of instances the poisoning in human beings has occurred at the same time as outbreaks of paralysis (limber-neck) in chickens and turkeys which ate the discarded food.

Treatment in severe cases is entirely unsatisfactory, but since the illness is caused by a limited amount of the poison, there is no increase in the amount of toxin after the food is taken into the gastro-intestinal tract, and since there is promise of complete recovery if the immediate action of the poison is withstood, active treatment should be

persevered with in all cases. Emesis should be induced even though the patient has vomited spontaneously, and though several hours may have elapsed since the food was taken into the stomach, and active purgation should be instituted if possible, preferably with castor oil or epsom salts. Enemata should be given if purgation is not obtained. The patient should be kept as quiet as possible and should have sufficient simple food and plenty of water. Stimulants should be given as indicated. Strychnine may be given freely and seems to be of value. Pilocarpine may relieve the dryness of the mouth and pharynx, but must be used with care, as the patient is unable to cough up fluid from the lungs in case of pulmonary edema. The danger of insufflation pneumonia should be borne in mind, and it is often advisable to give water per rectum instead of by mouth. Oxygen should be held in readiness for artificial respiration, and, since respiratory failure may occur while the circulation is still good, the artificial respiration should be maintained for hours if necessary. Anti-toxin sera may be of some value if given very early, and it is hoped that they will be placed upon the market within a few months.

The control of botulism is in the hands of the housewife rather than in the hands of the physician, as care in the preparation of home-canned foods will eliminate all danger of poisoning. Fruits and vegetables should be canned by the methods that are authorized by the United States Department of Agriculture. No home-canned products should be served, or even tasted, until they have been boiled. No canned vegetables or fruits which show the slightest sign of spoiling should be eaten or tasted by human beings, and all spoiled material should be boiled for at least an hour before it is discarded.

#### RED CROSS UNITS.

Last month attention was called to the opportunity afforded by the Red Cross for physicians at home, as well as for those able with better fortune to serve with the fighting forces of the nation. For the purpose of service with the army, or for purposes of training personnel, there are various Red Cross units available in which a man of any capability, or of any inclination or special training, can find valuable and useful employment.

First on this list comes the Red Cross ambulance company, which supplements and assists the regular army service in the removal of wounded from the front to hospital accommodations. These companies may be used on hospital trains and ships, as well as on other means of transport, and also for the establishment of emergency hospitals. The ambulance company has five medical officers and a corps of 86 enlisted men. The base hospital unit is enrolled for service at a military base. Its organization includes a director with a staff made up of an adjutant, quartermaster and a registrar. It has a surgical section with a chief and eight staff surgeons, including an orthopedist and one or more eye, throat and ear specialists. Its medical section has a chief and five staff physicians, including a specialist on nervous and mental diseases. The laboratory section has a chief and two qualified as-



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sistants. There are also in the unit two dentists skilled in oral surgery, fifty nurses, twenty-five volunteer nurses' aids, 150 male personnel and 15 employees. Various other volunteer assistants may be attached.

The hospital unit is designed to supplement established military hospitals. Sections of these units may be assigned to other sanitary organizations where need arises. The hospital unit consists of a director, a surgical chief and four staff surgeons, a medical chief and four staff physicians, a head nurse and twenty nurses, and three clerks who may be women.

The surgical section unit is intended to reinforce the operating staffs of military hospitals in time of emergency. This unit consists of a director, three surgeons, one head nurse and six nurses, two orderlies and a recorder who must be a stenographer. There is an emergency nurses' detachment to meet sudden calls for assistance from the regular sanitary services for duty in any emergency requiring nurses. This detachment consists of a head nurse who is one of a group of ten nurses.

The sanitary training detachment is organized to train men for duty in the enlisted medical corps at the front and in the line of communications. It includes a commandant with assistant, quartermaster, pharmacist, five section chiefs, four mechanics, four carpenters, two cooks, two clerks and forty privates. The two first named officers are physicians. The information section is designed to record and report names, addresses, physical condition and other data of patients and prisoners. Refreshment units are enrolled for the purpose of furnishing refreshments to troops in transit, and to patients and convalescents at stopping points en route. Supply depot units are intended to care for Red Cross supply depots. Red Cross general hospitals are also organized in the home country to be taken over by the military establishment in case of need. Finally there is a division concerned with providing homes for convalescents.

Surely no physician can escape the conviction that if his place is not with the fighting forces, then there is some place open to him in this varied organization which he should lose no time in occupying. This is a time for every man to do his bit and his best bit. Above all it is the time for physicians to enroll in their country's service, if not abroad, then without fail at home. No one is exempt from the obligation of this service.

### THE ALCOHOL QUESTION.

#### III. Alcohol a Public Health Problem.

All proponents of our western type of civilization are agreed on the elemental importance of disease prevention. This is not true of Oriental civilizations. We therefore consider that man out of sympathy with our type of civilization who does not accept the obligation of disease prevention as axiomatic. We may not remain sane and civilized, and think otherwise. It follows in order that the strifes and contentious bitterness which have signalized the advancing art of preventive medicine, must have arisen from variant interpretations of ways and

means for fostering public health, which is the epitome of preventive medicine. Whether we believe that disease is error of mind alone, or whether we accept the theory of specific germs in its totality, we do, all of us, assume the initial premise that disease should be prevented, and each in his several way seeks the advantage of that intangible thing we call the public health.

If then contention arises solely from differing judgment of ways and means, it would seem inevitable that, provided a certain method gave definite evidence of successfully advancing the cause of public health, it should and would receive hearty support from every member of our western civilization. And any who oppose such a method would thereby declare themselves in the category of those who are not in sympathy with the ideals of our civilization. If, finally, alcohol as a beverage can be demonstrated inimicable to public health in a large degree, and if no confiscation of invested capital is permitted during its eradication, surely its eradication must command the hearty support of all who do not fall in the category above named.

It remains then to decide whether alcohol has a public health relationship, and if it has, whether it is beneficial or adverse to the public health in any large degree. Only with this decision made, are we ready logically to take action. And if alcohol cannot prove itself a distinct advantage to the cause of public health and the advancement of civilization, and if, moreover, there is irreproachable evidence of its deleterious influence, then we can but logically demand its complete elimination.

Diseases may be classified roughly as communicable, industrial and degenerative or constitutional. It is not necessary in the year 1917 to demonstrate the enormous evidence that predisposition to infectious diseases increases with the use of alcohol. Bacteriology has spent a herculean labor in elucidating the specificity, properties, virulence and favoring environment of bacteria. Only recently have we begun to attack those infinitely more abstruse problems of predisposition and resistance to infection. What may eventuate from the hypotheses of today, no man can say. This much we know, however, by induction from an overwhelming mass of data. Alcohol renders the tissue soil more susceptible to bacterial invasion.

The relation of alcohol to industrial disease and accident is equally well established. Due to its physiological action which has been discussed in a former editorial, it favors and predisposes to casualty. Brickley<sup>1</sup> summarized a study of 40,000 patients per year treated in the Haymarket Relief Station in Boston, as follows: Alcohol causes accidents, obscures diagnosis, increases liability to infection at time of accident, prevents adequate treatment, increases danger of complications, retards repair, gives poorer end results, and increases mortality from accident. Haven Emerson<sup>2</sup> says that alcohol increases susceptibility to metallic poisoning in lead, phosphorus and aniline industries. The available data on the relation of alcohol to indus-

1. Boston M. & S. Jour., May 20, 1916, p. 744.

2. Am. J. Pub. Health, June, 1917, p. 558.

trial disease is enormous and bears but one interpretation.

As to the third classification of disease, it is becoming daily more evident that alcohol plays a prominent role in various degenerative processes and in defective heredity. Moral and mental degeneration are no less definite under its influence. To call alcoholism a symptom, and not a cause, is undoubtedly correct in many cases, yet the results in increase of disease are the same no matter what the explanation for the presence of alcohol. Here too must be noted that vicious circle in which alcohol can never be clearly established as cause or effect, namely, poor housing, poverty, high disease incidence, poor moral conditions, crime, alcoholism. It is beside the question and well-nigh impossible to establish alcohol as the root evil. Its common association under any etiology with these social vices is enough to condemn it.

Public health activity thus far has confined itself with singular persistence to infectious disease. At last, however, it is recognized that the function of preventive medicine is the prevention of all disease. Mortality rates can no longer be lowered with such breathless rapidity as attended the earlier campaigns against infectious diseases. We have not yet reached a perfect score, but yellow fever, plague, malaria, typhus, smallpox, typhoid, *ex grege*, are controllable. In the further significant reduction of mortality rates, we consider that constitutional and degenerative disease must be reduced by proper methods of prevention. If alcohol has the important primary and contributory relation to these diseases which scientific opinion assigns to it, then does alcohol become a paramount problem of public health.

The economic aspect of the case is of no small public health importance. Why should California in 1914 have the burden of imprisoning 2900 alcoholics in her county jails alone for an average period of twenty-two days? Why should there be near a thousand inebriates and drug habitues sent to the state insane hospital in a year, and of course the much larger number outside? Why should California bear the enormous cost of alcohol in industrial inefficiency, in care of defectives and sick due to alcohol, in imprisonment and policing made necessary by alcohol, in crime fostered by alcohol, and in disease induced and nurtured by alcohol, when proper consideration of the subject from the standpoint of the public health would lead to the abolition of alcohol?

It is the function of every board of health and health office to perpetuate those influences making for better public health and to attack aggressively those influences inimicable to the public health. Why should not the boards of health in California, from the state board to the health officer of the smallest community so fortunate as to have such an office, follow the example of the New York City board of health, and declare uncompromising war on alcohol in the interest of that public health they are subscribed to defend? In this connection attention is called to an excellent article by Professor Jaffa<sup>3</sup> in the monthly bulletin of the California State Board of Health on the

relation of alcoholic beverages to the national food problem. Why, above all, should not each individual physician feel within himself the obligation to make his really primary work the prevention of disease and as one part of this work, the eradication of alcohol as a beverage? Alcohol is doubtless a major public health problem in the world today. Why not face the facts and establish our convictions, if we have any?

#### EDITORIAL COMMENT.

We have thus far received no answer to the query last month under the caption, "Medical Women and the War," as to why women physicians should not receive the same rank and emolument for war service as men receive. In case the Government is unable or unwilling to utilize the proffered services of women physicians, the opportunity is not to be forgotten that presents itself in dispensary practice, laboratory, teaching, and various other public activities where men are released, or may be released, for active duty at the front, if only women can be secured to fill their positions. The same process is working out advantageously in other lines. Why should not the woman physician make possible a larger number of medical men with the fighting forces, by taking over their medical services at home?

Every reader of this and of most other journals of a like description is wearied beyond words by appeals to "support our advertisers." Here is another appeal, not in the form of an appeal, but in the likeness of a confident expectation that every reader of this JOURNAL has enough interest in it, his own property, to lead him to quote the JOURNAL to advertisers, and to trade with advertisers. The patronage of the medical profession is well worth while for any advertiser to cultivate. Advertising does get results in this JOURNAL. Why not make the fact more evident by calling attention to it? Why let advertisers complain that they are not receiving the expected patronage, when each reader has only to note the JOURNAL advertisements in ordering?

It will be the endeavor of the JOURNAL office to collect all news items of county interest and publish them in their appropriate column. However the size and interest of each county column will depend on the county associate editor primarily. If you are not satisfied with the space your county receives, or with the news ascribed to it, go after your county editor. If your county has no associate editor, elect or appoint one at once. We want news. If there is none to be had, the fault is not ours. But there is news of medical interest in every county. Send it in. See at the head of the editorial section who is your county editor, and send him news. And we shall be glad to receive letters on current topics if they are written to the point concisely and have something to say.

The Bureau of the Census announces that it will issue for the calendar year 1918 a monograph on tuberculosis mortality. It is requested that every physician, with this in view, pay special attention to his death reports from now on, specific-

3. July, 1917, p. 8.



ally giving an accurate and definite statement of the occupation of the deceased. This is a matter of real importance, and a little attention on the part of physicians will make possible a much more valuable report.

The Mental Hygiene War Work Committee of the National Committee for Mental Hygiene is anxious to obtain the names of psychiatrists and neurologists who are willing to give part-time service in the examination of National Guard troops in their vicinity. The recent decision of the War Department to examine the National Guard troops in their armories before sending them to camp, makes it necessary to secure at once a large number of examining physicians. To meet the situation the Surgeon General of the Army has arranged to accept for this work qualified physicians on contract. A physician may contract for specified duty, at a specified place, for a specified time, or for part time. This latter provision makes it possible for many physicians who cannot take out commissions, or who cannot give all of their time to the work for a period of months, to give part-time each week. Further information can be received from Dr. Frankwood E. Williams, 50 Union Square, New York City.

**Do not pay money to unauthorized agents who claim to be peddling state medical directories. Please report to us at once any such solicitation.**

There is probably no class of dependents whose welfare has been more completely neglected, who have received less scientific study and care, than the aged. The child dependent has the world for its guardian; the aged dependent is disowned by its own. There are scores of works dealing with the child in the home and in institutions; until recently there was not a single work considering the institutional care of the aged, not a journal of any kind sufficiently interested in the welfare of the aged to devote special space to this subject.

The keynote of the treatment of aged persons is mental stimulation, to overcome the mental depression natural to the aged, especially those who are dependent upon others for their support. This mental stimulation may be brought about through recreation or amusements, or through arousing an interest in the affairs of the day, or in agreeable work, or in a hobby, or in self or another, or in the institution itself. I saw this well exemplified in a home for aged pensioners near Vienna which I visited a few years ago. The inmates were proud of their institution, and my guide took pains to show me how they helped each other to keep their dormitories, dining rooms and other rooms, halls, and walks clean and neat. They were proud of the appearance of the shops and of the skill of the inmates who worked there. The men took pride in their appearance, and before going out they washed themselves and brushed their clothes, hats and shoes. They had a band and an orchestra composed of inmates who gave occasional performances and always had appreciative audiences. Provision was made for their recreation; there was a well stocked library, and a canteen was established for them on the grounds. The canteen was maintained from the proceeds of knick-knacks made by the inmates, of concerts by the band, contributions from visitors and a slight profit on the sale of things supplied by the canteen, all of which went into a common fund. Similar provision for the recreation of the inmates could be made in all homes for the aged at but little cost.—I. L. Nascher, M. D., New York, Modern Hospital, July, 1917.

## Original Articles

### SPLENECTOMY IN PERNICIOUS ANEMIA.

By HARRY M. SHERMAN, M. D.,  
F. A. C. S., San Francisco.

"The removal of a spleen damaged by rupture, torsion of its pedicle, or loosened from its position in the abdominal cavity, is an operation in itself not difficult and unlikely to lead to any untoward consequences" (Thursfield and Gow). Therefore the spleen itself may be assumed to be an organ not wholly essential to the life of the individual, and "that its functions, whatever these may be, are capable of performance by other tissues in the body." Sir John Bland-Sutton, in the British Journal of Surgery, Vol. I, No. 2, published in October, 1913, quotes Pliny (A. D. 23-79) as saying of the spleen that "sometimes it is a peculiar hindrance to runners so that they burn it away from those runners who are incommoded by it," and points out that the traditions before the Christian era showed that men and animals could live without a spleen. In 1581 (Bland-Sutton; Adelman), Viard tied the vessels of and removed a spleen that had prolapsed through a wound involving the false ribs, and the patient recovered. Nearly 300 years passed, however, before physiology took up the subject, when, in 1841, Bardeleben extirpated the spleen and thyroid of a dog and the animal lived six years in health afterward.

Vulpus in 1894 (Bland-Sutton) noted that in young animals who had abundant red marrow, splenectomy could be done with no sequent bad effects, but in older animals there was always fever and emaciation. Moreover, Vulpus noted in one of his splenectomized dogs enlargement of the abdominal lymph glands and a number of miliary bodies in the peritoneum and omentum which structurally resembled the Malpighian bodies of the spleen. That they came as a result of the splenectomy is rendered doubtful by a case report of Albrecht (Bland-Sutton) who saw in a young man dead of nephritis, a spleen only the size of a walnut in the usual place, while sprinkled throughout the abdomen—on the ligaments of the liver, on the mesentery and mesocolon and on the peritoneum generally—were a multitude of little spleens, each of which was red, the pulp histologically splenic in character, and each having a capsule and a covering of peritoneum.

In spite of the opportunities of modern times for experimentation, physiologists have not yet been able to ascribe to the spleen a definite function. Thursfield and Gow say of its functions, "*whatever these may be*," and Bland-Sutton speaks of it as an enormous lymph gland, the removal of which is likened to the removal of enlarged lymph nodes from the neck, axilla or groin.

The present case is reported chiefly because it illustrates the common or normal reaction of patients with pernicious anemia to a splenectomy, and it includes a necropsy report which is practically classical.

The patient, a man 51 years old, was sent to

me by Doctor W. C. Chilson of Tulare. He was an apiarist. He had had indigestion off and on for 15 years. When he had the indigestion he would vomit and so get relief. Sometimes he vomited blood which he thought came from his throat. The last hematemesis was 5-6 weeks before coming to me. He was anorexic and constipated, the stools sometimes being clay colored. He slept badly. He had lost 12-15 lbs. of weight.

Examination in the hospital showed emaciation and jaundice. Clinically the abdomen was negative; the urine was normal except for a trace of albumen; the stool was negative. The blood showed 27% hemoglobin, 850,000 red cells, 5400 white cells. The red cells were irregular in shape and size with poor coloring. There were megaloblasts and a few megalocytes. The white differential count was: polymorphonuclears 79%, large mononuclears 2, small mononuclears 19. There were no malarial parasites. The Wassermann reaction was negative. After a test meal the stomach contents showed no free hydrochloric acid, no combined hydrochloric acid, no occult blood, no lactic acid, no Boas-Oppler bacilli.

Doctor Harold Hill and Doctor G. H. Evans saw him with me and agreed in the diagnosis of pernicious anemia. Under dietetic and arsenic treatment he improved and went home, where he continued the arsenic, but ate, I am quite sure, in a somewhat erratic way, being a man much given to the having of ideas, and once he became possessed of an idea he was wholly dominated by it. For instance, he was unalterably convinced that his condition was due to the inhalation of formic acid in working over his bees.

Five months later he returned and was found to have relapsed, the hemoglobin was 30%, 1,450,000 red cells. Color index 1.+, irregularities of shape and size, many megalocytes, no nucleated cells, no malarial parasites. The white cells were 3400.

A temporary improvement followed rest and food and then he again failed, the red count going down to 950,000, still irregular in shape and size with megalocytes, microcytes, nucleated cells, and poikilocytes. The blood pressure was 110 mm. Hg. At this time he complained of parasthesias of hands and feet, he was very weak physically and somewhat demented.

Two days later he was transfused from his son; the blood flowed for 20 minutes and during this time the patient's hemoglobin rose from 12% to 25%, and his pulse fell from 112 to 92. Later in that day his hemoglobin reached 35 and there were 2,050,000 red cells. The next day the hemoglobin was 40 and the red cells 2,200,000.

Two days after the first transfusion I did a second from another son and so ran his hemoglobin up to 53 and his red cell count to 2,800,000.

The next day I removed the spleen. The organ was not enlarged, there were no adhesions, the artery was tied before the veins, silk was used, no difficulty was encountered. Nothing was palpably wrong in the other abdominal organs.

From this operation the patient made a normal

recovery. The parasthesia in the hands and feet lessened, more in the hands. The hemoglobin continued to rise and three weeks after the splenectomy it was 70, the red cells remained 2,800,000.

Two months later the hemoglobin was 92. Red cell count 3,500,000, numerous megalocytes, occasionally a red cell contained one, sometimes two, small colloid bodies taking the basophilic stain by Wright's method, the so-called Howell-Jolly bodies. The white count was 8,200.

This count in the end of January, 1915, three months after the splenectomy, was the high tide of the improvement. From that time all counts showed him to be failing. His blood picture showed this, and his conduct in all particulars did the same. He complained especially of the parasthesia which reached from his hands to his upper arms and from his feet to his waist, and as a phase, I think, of this he told of a dragging in his abdomen.

After going down hill six months he had hemoglobin 45%, red cell count 1,400,000, many megaloblasts and megalocytes and a few poikilocytes.

In September he returned very weak, dyspnoeic on slight exertion. The parasthesia was his chief complaint: it included the hands to the wrist, and the feet and legs, etc., up to the waist. He again complained of the dragging inside.

His hemoglobin was 20%, red cells 1,000,000, white 4,000, the reds showed the same characteristics as before, but no Howell-Jolly bodies were found. Purely as a temporary measure I transfused him again from his son. The father could live for a while on the son's blood, and the son was wholly willing to give it. By this we ran the father's hemoglobin up to 30, the parasthesia left the hands and only extended up so far as the knees from the feet. The improvement was not as much as I had hoped for, but the blood clotted in the tube after 20 minutes of running and so stopped the transfusion and I did not think it fair to the son to make another connection. The gain lasted only a short time and then he began to fail rapidly. But he was anxious to live and returned in November with two daughters to have more transfusions, but these I advised against, though I did have the hemolysis possibilities studied.

His hemoglobin was but 10, his red cells 500,000, they were very irregular in size and shape. No nucleated cells seen. The white cells were 3,000.

He died about 13 months after the splenectomy. Thursfield and Gow, St. Bartholomew's Hospital Reports, Vol. L, Part 1, Article, Splenomegaly—Splenectomy, quote the fact that the spleen is not an organ essential to life, and Noguchi's blood studies on one man who had lost his spleen—not a pernicious anemic—in whom he noted first a "diminution in the total number of the polymorphonuclears . . . and increase in the absolute numbers of the lymphocytes . . . and that the eosinophiles are increased; and that later

still the blood picture resumes a perfectly normal state." They quote and experience variations from these studies, and finally conclude that the effect on the blood varies in different individuals and instances; usually there is a quick increase in both reds and whites with a gradual return to near the norm, but with tendencies in the direction pointed out by Noguchi.

In pernicious anemia they quote Eppinger, Klemperer and Hirschfeld on the indication for splenectomy. "Eppinger's view may be stated as follows: The iodine number of the blood fat varies: it is at a minimum after experimental splenectomy; it is at a maximum after poisoning with toluylene diamine. In human beings high iodine numbers are found in all hemolytic processes. Secondly, the normal urobilin content of the stools is about 0.15 grm. per diem. In hemolytic diseases it is enormously increased, to 3 or 4 grm. per diem. In hemolytic icterus the effect of splenectomy is to lower both the output of urobilin and the iodine number of the blood fats. Eppinger therefore believes that splenectomy is indicated in all patients in whom these phenomena are present, holding that they provide an index of the morbid hemolytic influence of the spleen."

Klemperer and Hirschfeld, on the other hand, believe that removal of the spleen provides a stimulus to the hemopoietic functions of the bone marrow, and that the normal function of the organ is to regulate the production of the erythrocytes. Its removal, they point out, tends often to the appearance of a polycythemia.

Eppinger therefore can hope for a permanent cure of the disease; Klemperer would expect only an improvement in the blood condition. Hirschfeld states plainly that splenectomy is only a symptom remedy.

Thursfield and Gow refer to 21 cases of splenectomy in pernicious anemia which they have traced. They quote no absolute cures. They point out the long periods of improvement and that in the exacerbations treatment will often inaugurate a remission; when that does not follow it may be inferred that the patient is entering the final phase, and splenectomy may offer a release from this, inaugurate another remission and so prolong life and even an active life for a limited time at any rate.

Dr. H. C. Moffitt in *The American Journal of the Medical Sciences*, December, 1914, quotes the same authorities and to the same effect. Eppinger bases the indications for splenectomy on increased urobilin in urine and stools as an index of pathologic hemolysis, and "has pointed out that the iodine content of the blood after the removal of cholesterin and cholesterin esters runs fairly parallel to the degree of pathologic hemolysis. Eppinger reported five splenectomized patients after times varying from a few days to nine months, in all of whom there were icteric coloring and large quantities of urobilinogen in the stools. In these cases splenectomy stopped the blood destruction." Moffitt saw one of these

patients six months after the operation, and while he had gained weight and had returned to business, his color was not normal and his blood was still of the megalocytic type.

Of Klemperer and Hirschfeld, Moffitt says, "the theory is advanced of some normal regulating function of the spleen upon the activity of the bone marrow; after the removal of the spleen, particularly when diseased, this inhibition is released and normal and abnormal erythrocytes are thrown rapidly into the circulation. In nine cases there were great numbers of normoblasts and erythrocytes with Howell-Jolly bodies in the peripheral blood. In one case seven months after the operation megalocytes were prominent in the blood picture and there was no difficulty in recognizing the pernicious type. The authors agree that splenectomy may bring about a remission when other means have failed, but Hirschfeld states plainly that 'splenectomy is only a symptom remedy.'"

In all Moffitt records thirty-three cases with full reports of clinical and laboratory findings. Of these, eight died immediately or soon after operation. Of the remaining twenty-three many improved rapidly in most all particulars, but none lost their pathologic blood picture, and while many of their symptoms were ameliorated they were none of them restored to health, for the most that he can say for the operation is that "cases are reported apparently cured after periods of three to nine months (Mosse, Eppinger); but the time is much too short to permit any such statement.

Moffitt argues that splenectomy may be counted on with fair hope to bring about a remission when other means have failed.

There have been a number of these cases reported in the past year but the time forbids their being drawn into this paper. I may merely cite Percy's report of five patients in whom he used the technic I had tried, viz., massive transfusion and then the splenectomy. One of these he cites as being satisfactory, and the other had been too recently operated upon to permit any deductions.

In the case of my report the result certainly showed that the splenectomy had but a temporary effect. That it did have some effect I am sure, for the patient was failing though under active treatment and so can be assumed to have been in the terminal phase when splenectomized. He had two massive transfusions, but their effect alone, at the best, could not have been expected to have lasted more than three weeks, while the patient gained steadily for three months after the splenectomy and did not get into a desperate condition for five months more, so that the method and the operation seem to me to have been to some extent justified.

Mr. H. G. Brown: Died November 28, 1915; autopsy November 28, 1915.

Man about 50 years old, poorly nourished, emaciated, skin dry, light brown hue, no edema, no jaundice. Skin and visible mucous membranes very pale, superficial lymph glands not enlarged. Hair partly gray, pupils equal, not dilated, nose normal. Teeth good, well preserved and kept,



tongue pale, coated, scars from transfusion operations at both elbows. Long white scar on abdomen in left mammary line from costal border to below level of umbilicus. Abdomen flat. External genitals normal. Thin layer of submucous fat, bright yellow color. Muscles very pale and dry, have a waxy appearance, rigor fairly well marked, beginning calcification of costal cartilages. Abdominal viscera: flexure and adjoining parts of transverse and descending colon bound to under-surface of abdominal scar near the upper third by long, quite firm adhesions. Omentum drawn up and attached firmly in the same place. No other adhesions in the abdomen. Spleen absent. No adhesions in or near the splenic region. No fluid in abdomen. Peritoneum dry. All viscera very pale. Right kidney normal size. Capsule very slightly adherent. Surface smooth, cut surface very pale with a yellowish tint. Markings normal, ureter normal. Right suprarenal normal. Left kidney and left suprarenal same as right. Bladder contains small amount of pale, cloudy urine, mucous membrane pale. Seminal vesicle full of albuminous thick fluid, prostate apparently normal. Urethra normal. Sigmoid and rectum empty. Adherent thick mucus to the pale mucous membrane. Colon empty except for small, hard masses of material resembling charcoal. Cecum full of bile-stained liquid. Appendix small and atrophic. No adhesions. Ileum, jejunum and duodenum empty except for small amount of bile-stained mucus. Small mucous membrane in the lower ileum, very thin. In this region the muscle wall is also very thin. Stomach small, contains small amount of thick mucus. Stomach mucosa thin, smooth and very pale. No hemorrhages anywhere seen, no ulcers. Bile duct open. No parasites found. Pancreas very pale, otherwise normal. Liver at margins of ribs, normal size, surface smooth. Cut surface very pale, centers of lobules stand out plainly as though pigmented. Diaphragm: 5th rib right, 6th rib left. Right pleural cavity almost entirely obliterated by old form of adhesions. Right lung, old scar at apex, the whole lung very edematous. Bronchioles filled with frothy liquid, very numerous, very small bronchopneumonia patches. Left lung same as right, except no adhesions. About 300 cc. clear fluid in left pleural cavity. Heart: no fluid in pericardium, heart normal size. Small post-mortem clots in cavities, valves normal, right ventricle, 6 m.m.; left 11 m.m. Cut surface flabby, numerous small, light yellow, pin-point spots in the muscle wall especially well shown beneath the endocardium in wall of left ventricle. Aorta normal. Thoracic and abdominal vessels normal. No visible enlargement of any of the abdominal or thoracic lymph glands except the peribronchial lymph glands which are anthracotic. No gall-stones. Gall-bladder normal. No thymus remnant found. Thyroid small, posterior capsule very adherent to trachea. Cut surface very solid and dry. Bone marrow of rib very soft and pale red color. Spinal cord quite firm meninges; pale, otherwise normal. Cut surface of cord apparently normal markings.

Anatomical diagnosis: Pernicious anemia; atrophy of intestinal mucosa; brown atrophy of liver. Fatty degeneration of heart; old adhesive pleurisy on right; edema of lungs, with terminal bronchopneumonia.

#### St. Luke's Pathologic Laboratory.

Pathologic report December 6, 1915.

Section of lung shows very marked edema. Section of thyroid gland shows atrophy and fibrosis. Section of heart muscle shows extensive fatty degeneration and beginning brown atrophy. Section of prostate shows marked fibrosis. Section of stomach shows atrophy of the mucous membrane. Section of liver shows marked brown atrophy in the centers of the liver lobules. Much fat in the fine droplets about periphery of the lobules. Section of gall-bladder shows mucous membrane atrophic.

Section of kidney shows numerous small scars in the cortex in which are collections of leukocytes. The glomeruli in these scars show hyaline degeneration of the capsule. The capillary loops are intact. Much interstitial fibrous tissue between the collecting tubules. Most of the tubules are filled with granular material.

Sections of spinal cord show no lesion.

Section of suprarenal capsule show no lesion.

Sections of aorta show normal structure.

Section of small intestine in the lower illum shows atrophy of the mucous membrane.

All sections show severe anemia.

Smears of bone marrow show many nucleated red cells, some very large, some small and irregular.

Many myelocytes, few of which contain eosinophil granules.

Diagnosis: Pernicious anemia; fatty degeneration of the heart; atrophy of all organs; arteriosclerotic kidney.

#### Discussion.

Dr. H. C. Moffitt: I would like to say that I think it wrong to consider pernicious anemia as a disease of the blood. If we regard it so, we will miss a number of cases.

I saw an interesting man to-day and, queerly enough, he comes from near Tulare. His blood count was normal in October. From the nature of his paresthesia you would have to regard him as a man who would probably have pernicious anemia. To-day his red cells are not as large as we usually see, but are well above normal, and the blood picture is otherwise that of pernicious anemia. The paresthesia began in the typical way and jumped suddenly from ankle to knee, knee to waist. Paresthesias like this (apart from a few disseminated spinal cord lesions) outside of pernicious anemia are extremely rare.

The cases of disseminated spinal cord lesions described by Batten and Collier have, many of them, a terminal blood picture of pernicious anemia. Lesions in the spinal cord, stomach and intestines are quite as important as lesions in the bone marrow, and for this reason it seems to me wrong to talk of splenectomy as a possible cure for pernicious anemia. It will, as Dr. Sherman says, give us one method of bringing about remissions, but it is almost impossible to say when a patient with pernicious anemia will not spontaneously have remissions.

If we do advocate splenectomy, we must realize thoroughly that we are relieving one phase of the disease—the action of spleen on bone marrow, but are not at all reaching the fundamental cause of the disease.

Dr. P. H. Pierson: I have been interested in this subject, especially in the urobilin output, which was studied in a dozen cases on the services of Dr. Edsall and Dr. Cabot of the Massachusetts General Hospital. Dr. Robertson did the work by the Wilbur and Addis method, by extracting the urobilin from the 24-hour stool with acid alcohol, and diluting this extract until the characteristic spectroscopic absorption bands of urobilin disappeared (about 5000 dilution in normal individuals). In the pernicious anemia cases studied, they found the dilutions ran up as high as 16,000 to 46,000. The effect of salvarsan on this urobilin output was practically nihil. Transfusion seemed to increase temporarily the amount of urobilin output because of the stimulation of the bone marrow. After splenectomy the urobilin dropped in four out of five cases to practically normal. One went below normal to 3500. In one other case the amount had risen considerably a few months later, and that case was not doing well. In summing up his article, he advocates the use of urobilin estimation (which shows the amount of blood destruction) to indicate whether splenectomy is advisable. Cases with spinal cord manifestations were not splenectomized because of the probably unfavorable results that would take place.

Closing discussion, Dr. Sherman: There is very little for me to say. I do not think for a moment that splenectomy can be considered more than an inaugurator of remission when nothing else will do it. If the individual is going into the terminal

phase in spite of treatment, it is perfectly fair, it seems to me, to advocate it.

I will have to acknowledge that in this patient no test of the uroblin output was made nor of the fragility of the blood cells.

One point interested me, although I do not fully know its value, and that is the Howell-Jolly bodies in the blood. There were relatively few in this instance, and if their presence indicates, as it may, a speeding up of the blood-making function and the calling out of the young cells earlier than normal to fill the ranks in the vessels, their absence would possibly mean a failure at the very point of origin of the red cells—a failure to generate reds rather than a too rapid destruction of them.

### SOME UNUSUAL ASPECTS OF EXOPHTHALMIC GOITER.\*

By GEORGE D. BARNETT, M. D., San Francisco.  
From the Medical Division of the Stanford Medical School.

With the great increase in pathological and experimental work on exophthalmic goiter during the past few years the focus of attention has shifted somewhat from the field of diagnosis to that of pathogenesis, in which our interest has recently been aroused by the stimulating suggestions of Rosenow and Billings. A decade ago the prominent subjects in thyroid literature were early diagnosis, obscure points in diagnosis, formes frustes, etc., yet in spite of the thoroughness with which the question of diagnosis has been exhausted, there is apparently a considerable number of fairly well-marked cases of hyperthyroidism in which the diagnosis is not made, or is greatly obscured by the undue prominence of certain of the less common symptoms. The cases here reported may serve to point out the possibility of such diagnostic error, and to emphasize again the necessity of keeping the thyroid in mind in considering many rather obscure clinical pictures.

Case 1.—Miss F., student of 21 with unimportant family and past history, consulted her family physician in January, 1915, complaining of loss of appetite and malaise. She was found to have a temperature of 103.4; white blood count 9600; Widal negative. Urotropin was given. After a few days began to have frequent burning urination, and blood was discovered in the urine. Temperature rose to 100-103 every afternoon. Tuberculosis of the urinary tract being suspected, the urine was sent to a laboratory for guinea-pig inoculation, and four weeks later the laboratory reported positive tuberculosis. A diagnosis of tuberculosis of the kidney was made, but on account of the absence of any indication of tuberculosis in the ureteral urines, the patient was brought to the hospital in May, 1915, for further investigation.

Physical examination showed a small, well-developed young woman. Thyroid moderately prominent. Marked vasomotor flushing about chest. Pulse 100-124. Systolic blowing murmur at cardiac apex. Slight general abdominal tenderness. Tremor of hands. Knee-jerks lively. Urine 1.011 with trace of albumin and rare hyaline cast. White blood cells 8500; polymorphonuclear 57%, lymphocytes 40%. Hemoglobin 70%. Afternoon temperature 99 to 99.5. Cystoscopic examination showed mild cystitis and some things suggestive of pyelitis. Guinea-pig inoculations negative.

In this case, the rather striking fever at onset naturally occupied the attention of the attending physician, and the attempts to explain it on the basis of kidney infection and to influence that infection by means of hexamethylenamine totally

obscured the picture of hyperthyroidism that was doubtless developing during the weeks before the patient came to the hospital. With prolonged rest, overfeeding, hydrobromide of quinine and a discontinuance of bladder therapy there was practically complete relief from symptoms.

Case 2.—Miss W., schoolteacher, complaining of nervousness. Has had five attacks of pneumonia, and has had occasional periods of loss in weight, nervousness and irregular menstruation, but has been able to continue her work. Past history otherwise unimportant. In the summer of 1914 she began to be troubled with nervousness, cardiac palpitation and marked tremor, and lost ten pounds in weight. Physical examination at this time showed slight prominence of eyes, slight enlargement of thyroid; heart rate 120 with systolic blow at apex. A diagnosis of hyperthyroidism was made, and with prolonged rest, quinine hydrobromide, iodine ointment applied over the gland, and a copious non-irritating diet, improvement was marked.

Patient remained practically well up to the middle of January, 1915, when she had an apparent influenza infection for several days, with considerable fever, cough, and some rales in right chest. Was in bed two weeks, the fever continuing, at times as high as 102.5. Pulse 110-120. At the end of this time the temperature fell to normal, the pulse remaining 90 to 100. After a week or so the temperature again rose, and for a period of three weeks reached 100 to 101 each evening. A marked increase in the size of the thyroid was noted with the second rise in temperature. She continued to lose weight, had some sweats, considerable tremor and rapid heart action. White blood count 3700: polymorphonuclears 56%, lymphocytes 36%. Urine normal. X-ray of chest showed nothing positive. Following x-ray treatment of the thyroid, the gland was reduced to about half its former size and became firm, with well-defined borders. Leucopenia throughout. Widal negative. With continued rest in bed, iodine ointment and quinine hydrobromide in addition to the x-ray therapy, there was gradual improvement. Temperature fell to normal after about three weeks, and remained so except for an occasional transient rise to 99 or 100. Pulse 90 to 110 throughout. Patient left the hospital after four months, weighing more than ever before. No sweats. Eyes practically normal. Thyroid firm and small. No heart murmur. Very little tremor. Has remained well to the present time.

Here, again, without a definite knowledge of the previous attacks, one might well be misled by the striking temperature chart; and of course at the onset of such an attack as the last one the diagnosis must be held in abeyance until all the more usual causes of fever can be excluded.

The question of the frequency and extent of temperature elevation in exophthalmic goiter is one in which there is still difference of opinion. Bertoye, who in 1888 first made a detailed study of the matter, concluded from an analysis of a considerable number of cases that moderate transient fever is of frequent occurrence, and may be found at the onset, during the course of the disease, or only terminally. Kocher, on the other hand, does not consider that fever is a part of the picture in exophthalmic goiter at all, and agrees with Mackenzie that a temperature over 100 is exceedingly rare. In this country, casual mention is made by Barker, and in the papers from the Mayo clinic, of occasional slight fever during the course of the disease, but no emphasis has been laid on its occurrence except by W. Gilman

\*Read before the annual meeting of the California State Medical Society, Fresno, Cal., April 20th, 1916.

Thompson, who, in fifteen, out of a series of forty-three hospital cases reported, found fever of 101 to 104. The fever he describes is "of septic type, oftenest remittent, but sometimes intermittent, always irregular, and occasionally remaining elevated three or four degrees for several consecutive days," in some cases several weeks. It is unaccompanied by change in blood picture or by local manifestations.

Whether the fever is of special significance in exophthalmic goiter, perhaps characterizing a group of cases of different etiology or different degrees of thyroid intoxication, or whether incidental intercurrent infection is to explain the temperature elevation in these cases; or whether, following the work of Rosenow and Billings, we are going to find all exophthalmic goiter to be of infectious origin—these are questions which the near future seems likely to answer. In any event it seems well to point out the possible role of the thyroid in cases of unexplained fever, especially in the absence of leucocytosis.

Cerebral nerve disturbance in exophthalmic goiter, to which attention has recently been directed by Heuer, are among the rarer manifestations of the disease. The following case belongs in this group:

Case 3.—M. D., Danish buttermaker of 33, admitted June 10, 1915, complaining of general weakness and double vision, of six weeks' duration. Family history unimportant. At 21 had swelling in right testicle diagnosed tuberculosis, and testicle was removed. Left testicle was also affected, but healed under open-air treatment. In 1910 had an attack of jaundice lasting three months with vomiting and general weakness but no pain. Recovery following drainage of gall-bladder. In 1912 had repeated attacks of "convulsive vomiting" during a period of two months. Developed very rapid pulse, exophthalmos, and general weakness. Partial thyroidectomy was performed at the San Francisco Hospital, with complete cure, except for slight residual prominence of the eyes. Patient remained well and at work over three years.

About May 15, 1915, six weeks before admission to the hospital, began to notice blurring of vision, followed shortly by persistent double vision. General muscular weakness began about the same time and progressed rapidly. Arms and legs fatigue rapidly, and he has noticed that after chewing a short time he is unable to chew any but the softest foods, and there is a tendency for fluids to run out the nose.

Physical examination showed well-nourished young man. On getting up from supine position lifts head with hands. Moderate exophthalmos. Eye movements limited in all directions. Left eye lags in all movements. Slight ptosis on left. V. Graefe, Moebius, Stellwag present. Distinct weakness of muscles of mastication. Moderate enlargement of left lobe of thyroid. Right lobe apparently removed. No abnormality noted in heart and lungs. Operative scar right rectus. Right testicle gone. Slight fine tremor of extended hands. Tendon reflexes normal. Gait weak, cautious. No spasticity. No ataxia. No Romberg symptom. Stereognosis normal. Some general weakness of skeletal muscles throughout. Deltoids, triceps, scapular muscles, hamstrings and thigh muscles seem to be more affected than the more distal groups. Apparent slight atrophy of supraspinati.

Electrical reactions: No R. D. Both triceps muscles show rapid, though incomplete fatigue to faradic stimulation (interruption 60 per minute). X-ray examination showed normal sella turcica, no

evident enlargement of thymus. Urine on one occasion showed trace of sugar and a few finely granular casts. Blood: white cells 5100; polymorphonuclears 51%; lymphocytes 39%. Wassermann negative.

There is here an obvious hyperthyroidism, and in addition many of the symptoms of myasthenia gravis. The relation between these two conditions is an interesting one. Cases of Graves' disease with marked general muscular weakness, with eye muscle paralysis and other bulbar symptoms have been occasionally described for many years; and on the other hand cases of true myasthenia gravis now and then occur with exophthalmos, tachycardia, tremor, and other minor manifestations of hyperthyroidism. Often, as in this case, there is such a confusion of the two pictures that it is difficult to say which is the predominant one. Thus we have here goiter, tremor, exophthalmos, with recovery following operation, and marked eye signs—a striking picture of Graves' disease; and in addition such extensive muscular weakness involving especially the eye muscles and those of mastication and deglutition, with distinct though incomplete faradic fatiguability of both triceps, that a diagnosis of myasthenia gravis seems necessary.

The patient left the hospital, and except for occasional slight remissions, themselves characteristic of myasthenia gravis, became progressively weaker during the following five months. He returned in November, 1915, and died shortly after admission, with acute respiratory failure. Autopsy by Dr. Ophuls showed healed tuberculosis of the lungs; healed tuberculosis of the right kidney (unsuspected during life); healed tuberculosis of testis, with marked atrophy. Thyroid showed marked epithelial proliferation with several areas of round-cell infiltration. Parathyroids not found. No focal lesion in brain tissue.

In this connection it is of interest to recall the possible role of the parathyroids in the etiology of myasthenia. Following the discovery of the parathyroids and the relation between parathyroid insufficiency and tetany there was naturally a search for the condition which parathyroid hyperfunction might be expected to produce. Such a condition was found in the long recognized syndrome of myasthenia gravis, which, as Chvostek remarks, bears the same relation to tetany that the negative does to the picture. And considering the anatomical and functional relationship between thyroid and parathyroids, if myasthenia is hyper-parathyroidism, it is not surprising that it is occasionally associated with hyperthyroidism. However, the objections that have been raised to Chvostek's hypothesis: that in the manifest cases of myasthenia gravis that have come to autopsy, no anatomical evidence of parathyroid hyperfunction has been found; and that successful parathyroid grafts do not produce the slightest evidence of myasthenia in animals—these points must be considered, and leave us again in a state of haziness as to the nature of the condition and the cause of its occasional coincidence with exophthalmic goiter.

It is perhaps worth noting in our case, that



preceding the onset of any of the symptoms there was disease of both testicles necessitating removal of one of them, and producing atrophy of the other. Cases of myasthenia gravis with sexual infantilism have been described. In the present state of our knowledge of the inter-relation of the internal secretions we can only say that we have here a possible initial factor disturbing their equilibrium.

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### DISABILITY FROM INJURY TO THE FEET.\*

By G. J. McCHESNEY, M. D., San Francisco.

As one of the Medical Referees for the Industrial Accident Commission, I have examined twelve men who have claimed disability from injuries to the feet.

They have exhibited in all sixteen fractures, as follows: Six of one or both malleoli, four of the astragalus, two each of the os calcis and cuneiform, one each of the scaphoid and fifth metatarsal.

Now, this may not seem a series long enough upon which to base any conclusions, but they have been quite instructive to me, and I hope to make them a little so to you.

Their ages varied from twenty-eight to seventy-one, the average being forty-two—men therefore in the prime of life.

The examination was made on an average of eight months after the injury, surely time enough to get a fair estimate of the end results, and these end results were uniformly worse than they should have been.

This is an important point I wish to emphasize; we are not doing our best by this class of injuries. Of course one can say that a referee sees only the bad results, and the good results have no points in dispute requiring his services. This may be so, but there are too many similar results in the practices of all of us, wherein the results should be better than attained at present.

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To thus restore the balance of muscles moving the sub-astragaloid joint should not take over two or three months in the simple malleolar fractures, but when the astragalus or os calcis is fractured, unless most skilled and prompt efforts are made to preserve the integrity of this joint, whose importance I have endeavored to set before you, we have a man crippled permanently for all but the slightest occupations.

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Oakland, Cal.

(From the research department of The Western Laboratories, Oakland, California.)

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In this case, a post operative septicemia, 400 c.c. of a two per cent. solution of magnesium sulphate given intravenously was used, as soon as a blood culture revealed the presence of the streptococcus, with no benefit. White blood counts before and after the magnesium sulphate solution injections were uniformly low, a fact indicative of a particularly grave prognosis. In order to stimulate an increase in the activity of the leucocytes, leucocytic extract was given in doses of two cubic centimeters daily for a number of days. Following the use of the extract alone there was an increase in the white count of from six to seven thousand to twelve or thirteen thousand, but no marked leucocytosis was obtained. At this time the administration of magnesium sulphate was resumed in conjunction with the Leucocytic Extract with an immediate and decided increase in the leucocyte count and marked improvements in the physical condition of the patient, who continued to improve and went on to complete recovery.

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A study with a view of explaining the phenomena incidental to this case was undertaken in animals.

It often happens that various products having a therapeutic value when given subcutaneously are more prompt and extensive in their action when injected intravenously. This is true of many substances which produce a leucocytosis because of a high protein content as in the use of nuclein, blood sera, etc., so the question naturally arose in this connection, whether or not intravenous injections of leucocytic extract would produce an increase in the white blood count similar to that produced by a subcutaneous injection, inasmuch as it differs from the above noted products in not being dependent on its protein content for its action.

In order to clear this point up a series of rabbits were injected with the same lot of leucocytic

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preceding the onset of any of the symptoms there was disease of both testicles necessitating removal of one of them, and producing atrophy of the other. Cases of myasthenia gravis with sexual infantilism have been described. In the present state of our knowledge of the inter-relation of the internal secretions we can only say that we have here a possible initial factor disturbing their equilibrium.

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### DISABILITY FROM INJURY TO THE FEET.\*

By G. J. McCHESNEY, M. D., San Francisco.

As one of the Medical Referees for the Industrial Accident Commission, I have examined twelve men who have claimed disability from injuries to the feet.

They have exhibited in all sixteen fractures, as follows: Six of one or both malleoli, four of the astragalus, two each of the os calcis and cuneiform, one each of the scaphoid and fifth metatarsal.

Now, this may not seem a series long enough upon which to base any conclusions, but they have been quite instructive to me, and I hope to make them a little so to you.

Their ages varied from twenty-eight to seventy-one, the average being forty-two—men therefore in the prime of life.

The examination was made on an average of eight months after the injury, surely time enough to get a fair estimate of the end results, and these end results were uniformly worse than they should have been.

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extract, one-half being given a dose intravenously, the other half subcutaneously.

For the sake of illustration the following tables show the result of one of these experiments.

TABLE I.

Rabbit No. 5 was given two cubic centimeters leucocytic extract subcutaneously immediately after the first blood count was taken.

Time	W.B.C.	L.M.	S.M.	Poly	E.	B.
9:00 A. M.	7,200	13	47	36	4	0
11:00 A. M.	5,300	12	46	40	1	1
1:00 P. M.	8,500	4	56	59	1	0
3:00 P. M.	9,000	4	42	47	7	0
5:00 P. M.	16,200	10	18	68	4	0
7:30 P. M.	15,000	8	29	63	0	0
9:00 A. M.	10,300	12	34	47	7	0

TABLE II.

Rabbit No. 6 was given two cubic centimeters of the same lot of leucocytic extract as in the case of rabbit No. 5 intravenously.

Time	W.B.C.	L.M.	S.M.	Poly	E.	B.
9:00 A. M.	7,466	9	16	72	1	2
11:00 A. M.	13,600	16	8	75	1	0
1:00 P. M.	23,500	6	13	78	3	0
3:00 P. M.	18,200	10	18	62	10	0
5:00 P. M.	10,000	9	17	68	6	0
7:30 P. M.	6,000	9	24	63	4	0
9:00 A. M.	8,000	9	16	71	3	1

From the above experiments it will be observed that as a result of the injections of leucocytic extract of the same lot and under the same conditions into two rabbits the one intravenously and the other subcutaneously blood changes are obtained which are in a general way similar, but differ as to the rapidity and intensity with which the changes takes place.

In the case of the rabbit receiving the extract intravenously an increase in the total leucocyte count of one hundred per cent. occurred within two hours after injection, and the maximum of two hundred per cent. in the total leucocyte count was noted within four hours after injection. This count rapidly fell to a point slightly below the original count within ten hours after the dose was given, while with the rabbit given the same amount of the same lot of Leucocytic Extract subcutaneously no definite increase in the blood count was noted before the eighth hour, the maximum being reached about the tenth hour, with the count remaining considerably above the normal twenty-four hours after treatment.

In other words, when leucocytic extract is given intravenously a rapid and marked increase in the blood count is obtained with as rapid a drop to normal, while the administration of the same agent subcutaneously results in a slower and less marked reaction but one which is prolonged over a much greater period of time.

It occurred to us at this time that if magnesium sulphate was of benefit in connection with leucocytic extract that it might be profitable to make a combination of the two products during their manufacture thereby minimizing the technic of administration and at the same time exalting the potency of the leucocytic extract. It was reasoned that since magnesium sulphate was of such great assistance in leucocytotherapy that a saturation of leucocytic extract with magnesium sulphate might yield a product which, when diluted with three to four hundred cubic centimeters of water, would be ready for intravenous injection,

but upon animal experimentation such a combination was found to be inert.

Following this a study was made of the effect on animals of intravenous injection of these two agents simultaneously and this combination was also found to be unsatisfactory. On the other hand, a potent leucocytic extract injected subcutaneously together with an intravenous injection of magnesium sulphate always produced a marked reaction as did leucocytic extract and magnesium sulphate both given intravenously provided the two were injected at least one-half hour apart.

The following protocols demonstrate the above stated facts:

Rabbit No. 66 was given a mixture intravenously of 2 c.c. leucocytic extract in 40 c.c. of a 2% magnesium sulphate solution + 0.3 grams calcium chloride to the liter. Blood counts made at the 8th and 24th hours failed to show any effects upon the blood pictures.

Rabbit No. 67 was given simultaneously 2 c.c. Leucocytic extract subcutaneously and 40 c.c. of a 2% solution of magnesium sulphate + 0.3 grams calcium chloride to the liter intravenously. Blood counts made at the 8th and 24th hours showed a 100% increase in the total leucocyte count.

Rabbit No. 68 was given one-half hour apart 2 c.c. Leucocytic extract and 40 c.c. of a 2% magnesium sulphate solution + 0.3 grams calcium chloride to the liter intravenously. Blood counts made at the 8th and 24th hours showed a 100% increase in the total leucocyte count.

Rabbit No. 69 was given intravenously at the same time but not mixed 2 c.c. Leucocytic extract and 40 c.c. of a 2% magnesium sulphate solution + 0.3 grams calcium chloride to the liter. Blood counts made at the 8th and 24th hours failed to show any change in the blood pictures.

Rabbits Nos. 70 and 71 were given two cubic centimeters leucocytic extract subcutaneously and intravenously. Blood counts made at the 8th and 24th hours showed respectively 105% and 130% increase in the total leucocyte count.

In these experiments the reactions were at no time greater than the reaction obtained with leucocytic extract without magnesium sulphate but in a series of rabbits which had been intravenously injected with a laboratory strain of a staphylococcus aureus the leucocytosis was invariably highest in those rabbits receiving both leucocytic extract and magnesium sulphate, second in those receiving leucocytic extract alone and lowest in those receiving magnesium sulphate alone.

The following protocols bear out these facts:—

Rabbit No. 83 was given 0.5 c.c. of a twenty-four-hour old bouillon culture of a staphylococcus aureus intravenously. On the fourth day after infection this rabbit was given simultaneously 2 c.c. leucocytic extract subcutaneously and 40 c.c. of a 2% magnesium sulphate solution + 0.3 grams calcium chloride to the liter intravenously. Blood counts made at the end of twenty-four hours showed a 160% increase over the white blood count taken at the time the extract was injected, or 600% increase over the white blood count before infection.

Rabbit No. 84, infected with a staphylococcus aureus as in the case of Rabbit No. 83, was given 40 c.c. of a 2% solution of magnesium sulphate + 0.3 grams calcium chloride to the liter intravenously and one-half hour later 2 c.c. of leucocytic extract subcutaneously. Blood counts made at the end of twenty-four hours showed a 175% increase over the white blood count made at the time the

extract was injected or 500% increase over the white blood count before infection.

Rabbit No. 85 was given 2 c.c. leucocytic extract subcutaneously and Rabbit No. 86 2 c.c. of the same extract intravenously. These rabbits had also been infected with a staphylococcus aureus. Blood counts made at the end of twenty-four hours showed respectively a 100% and 75% increase in the white blood counts, or about the same increase over the white blood count before infection.

Rabbits Nos. 87 and 88, infected with a staphylococcus aureus, were each given 40 c.c. of a 2% magnesium sulphate solution + 0.3 grams calcium chloride to the liter. Blood counts made at the end of twenty-four hours failed to show any change in the blood pictures.

From these experiments it is obvious that the value of leucocytic extract is exalted many times by the magnesium sulphate which in itself has apparently no effect.

The reason for these phenomena seem quite evident. In the case of injection with leucocytic extract we are dealing with an agent which produces a leucocytosis and at the same time, by virtue of it, a marked increase in the proteolytic ferment content of the tissues and tissue juices. These ferments are normally present, not only for the purpose of splitting complex proteins which may be in the tissues as a result of pathological conditions but also in order to take care of the ordinary products of katabolism. Consequently when leucocytic extract is given to a normal animal the increase in ferment content increases the nitrogenous end products to a definite point beyond which it is impossible to go because of a lack of available protein on which the ferment may act. The leucocytosis appears in response to a demand created by these nitrogenous end products and is therefore limited. On the other hand when given to an individual suffering from an infectious disease or a toxemia there is a great mass of protein material, the result of tissue and bacterial destruction, which must be digested before elimination can take place. In this case, after a dose of leucocytic extract with its coincident increase in ferment, digestion goes on rapidly, large quantities of nitrogenous end products are liberated and a consequent increase in the leucocytes results.

It is obvious, therefore, that the more rapidly these are produced, the more rapidly elimination must take place else the normal balance will be lost and pathological accumulation will occur. Normal elimination is, however, decreased in patients suffering from acute infections and toxemias owing to a swelling of the parenchymatous tissues of the excretory organs, which swelling is the direct result of the acid end products upon the colloids of the body. The administration of leucocytic extract increases the tissue and blood ferments and hence causes a more rapid splitting of these foreign proteins. These substances must be removed from the body, however, before recovery is complete and it therefore follows that any procedure which will increase the intestinal and urinary output will make for a rapid recovery.

Now it is a well established fact that whereas

colloids, which in this case are the cells of the body, swell in the presence of all acids, this swelling is greatly inhibited if any salt be added to the acid solution, some salts being more efficacious in this regard than others. The most useful are the salts of magnesium, barium and calcium and of these the sulphates rather than the others, hence in magnesium sulphate we have a salt ideal in its power to inhibit the above mentioned action of acids on colloids. In this particular instance we have the kidneys, intestines, etc., on whose excretory powers there is a very heavy demand so altered by these end products as to markedly reduce their functioning power. The intravenous injection of magnesium sulphate inhibits the swelling of the kidneys, increases the urinary output and thus disposes of the waste, which permits the ferment, produced by leucocytic extract, to complete the cycle of its digestion.

In addition to the case of streptococcemia already mentioned the following are a few case reports selected at random showing the clinical application of the above outlined theories.

*Japanese woman.*—Five months pregnant, developed an acute pyelitis with marked constitutional symptoms. During the course of the pyelitis a colon bacillus septicemia developed. The administration of leucocytic extract subcutaneously and magnesium sulphate intravenously was begun immediately after two different blood cultures had shown the presence of a colon bacillus. Two cubic centimeters of leucocytic extract were given subcutaneously daily, while four hundred cubic centimeters of a two per cent. magnesium sulphate solution was administered intravenously every third day, three injections being given in all. A blood culture taken after the final injection of magnesium sulphate was sterile.

Mrs. B., puerperal sepsis. Chill and temperature of 104° on third day after confinement with a streptococcus present in large numbers within the uterus. Patient prostrate, appearing very ill. Leucocytic extract was given subcutaneously immediately followed in a few hours by 350 c.c. of a 2% magnesium sulphate solution intravenously. The temperature fell to 99° in the next twenty-four hours, leucocytic extract was continued daily and a second and last dose of magnesium sulphate was given two days later. In less than eighteen hours the temperature reached normal, where it remained, the patient making an uneventful recovery.

The clinical history of many other cases similarly treated could be recited but it is believed that the above will suffice to demonstrate that in the treatment of bacteremias the combined use of leucocytic extract and magnesium sulphate solution is worthy of serious consideration.

#### SUMMARY.

While beneficial results may be obtained from the use of leucocytic extract and magnesium sulphate solution alone, much more gratifying results are obtained by their joint use, provided, that if they are administered simultaneously the extract be given subcutaneously and the salt solution intravenously. If, however, both are given intra-



venously one-half hour at least must be allowed to elapse between the administration of each.

Leucocytic extract given intravenously gives its maximum white blood count in four hours after injection, while the subcutaneous injection shows the maximum increase from the eighth to the tenth hour. It was also demonstrated that the leucocytic increase following intravenous injection is more transient than when administered subcutaneously.

It is apparent that the joint action of the leucocytic extract and magnesium sulphate solution is intensified when administered in a bacteremic condition more so than in a normal individual.

In the treatment of all bacteremias the combined use of leucocytic extract and magnesium sulphate solution has proven to be more efficacious than any other treatment heretofore devised.

#### INTESTINAL CRISES SIMULATING CHRONIC APPENDIX DISEASE DIAGNOSED BY ROENTGEN RAY FINDINGS.\*

By M. P. BURNHAM, M. D., and LLOYD B. CROW, M. D., San Francisco.

The marked obscurity of diagnosis in this case, which was finally cleared up by Roentgen findings, demonstrates quite clearly the value of the Roentgen examination as a "dernier ressort" method of diagnosis in all dubious abdominal complaints.

Mr. H. came under observation last February and had then been ill for a period of thirteen months. Age 45, unmarried. Occupation, a farmer, but had been in the liquor business for several years. States that during this time he had been a heavy consumer of alcohol in all forms.

Thirteen months before coming under our observation, he had consulted several local physicians, who had told him he was suffering from bright's disease and treated him for such, but showing no improvement he then consulted another physician in the same locality, who treated him symptomatically. Again not improving under this course of procedure, he consulted one of us. The following history was obtained:

The patient had always been a perfectly healthy man up to January, 1915. Somewhere about the first of January, 1915, he began to complain of a burning, scalding sensation in the eyes, which was attended with considerable lacrymation. Much stress was laid on this symptom by the patient and he stoutly persisted that every abdominal attack which he has had was always preceded by this phenomenon. Simultaneously with these morbid manifestations, he complained of jerkings in the facial muscles, accompanied by severe pain, which he described as rheumatic in character. He was also troubled with severe pharyngitis. About one week later he developed severe gas pains, coming on about noon, some six hours after eating his first meal of the day. They were so severe that he was unable to lie down, but forced to sit up

for long periods of time as lying down caused him severe palpitation of the heart.

Three days after the onset of the gas disturbance he had a severe attack of terrible griping pains throughout the bowel, radiating to the lumbar region of the spine. This attack lasted over a period of two weeks. For several days following this attack he was free from pain. He states that he was always constipated before these attacks came on. Enemas and strong cathartics were of no value. His stools were usually quite dark and never clay colored. These attacks, always similar in character, occurred quite regularly about once a week up to about one month before consulting us.

A short time prior to his arrival here, he remembers that three hours after taking some medicine prescribed by his local doctor, he became distinctly nauseated, developing severe pain in the right side, accompanied by a frontal headache and later on vomited. For a period of twenty-four hours these attacks were repeated, the colics on the right side lasting from fifteen to twenty minutes. Prior to this time he had noticed that he had been troubled with cramps in the region of the appendix, but had paid no attention to it.

In describing his attacks of intestinal pain associated with gas, he stated that he was obliged to urinate every hour during the night and day. Ordinarily he would only urinate four or five times during the day and never during the night. For the past year he has complained of being constantly chilled. He has lost ten pounds since the attacks first came on.

Past history: States he had gonorrhea nine years ago, but denies ever having syphilis. He had malaria eight years ago, otherwise he has been a robust, healthy man until afflicted with his present trouble.

Family history: Negative. Mother is well. Father died of old age. Several brothers and sisters living, who are all well.

Habits: Has been a heavy drinker prior to one year ago, also a consumer of about fifteen cigarettes a day for about twenty-five years. Physical examination revealed a slight amount of tenderness over the region of the appendix, otherwise negative.

Fundi were negative, both discs being distinctly outlined with no signs of inflammation. Pupils reacted to both light and accommodation. The left pupil was somewhat sluggish and resembled the springy pupil.

Nose and throat, chest and heart all negative.

Nervous system: No Romberg or Babinsky sign. Knee jerks were slightly increased. Achilles tendon reflex normal.

Genito-urinary examination revealed large glands in groins and an old chronic gonorrhea, complicated with several strictures. Otherwise his physical examination was negative.

Laboratory examination:

Blood pressure—maximum 140, minimum 90.

Hemoglobin 80.

Red cells 4,500,000.

White cells 5,900.

\* Read before the San Francisco County Medical Society, August 8, 1916.

Differential formula—Polymorphonuclear leucocytes 53.

Lymphocytes 42.

Eosinophiles 4.

Large mononuclears 1.

200 cells counted.

Wassermann negative.

Urine examination:

Specific gravity 1020.

No sugar, albumen, no casts.

Strong indican test.

Roentgen examination: Opaque meal of 500 c.c. barium sulphate buttermilk mixture. Stomach filled normally, was hook shaped, normal in size and position. Peristalsis was active, pyloric antrum sphincter and duodenal bulb were symmetrical. At the end of six hours the stomach was empty and the head of the bismuth column was in the sigmoid. Caecum was in the pelvis and apparently fixed. Appendix filled, was adherent to the posterior abdominal wall, painful on manipulation. Several plates of the gall bladder were negative for calculi. Gall bladder plates show several vertebrae with hypertrophic osteophytes on the articulating surfaces, most pronounced on the second and third lumbar.

Roentgen conclusions: Chronic appendix disease with ptosis and fixation of the caecum. Hypertrophic osteo-arthritis of the spine due to lues or some other cause.

From the history, physical examination and Roentgenological examination a diagnosis of chronic appendicitis was made. Syphilis was considered and ruled out on account of the history, negative Wassermann and absence of any physical lesions of syphilis.

Dr. Burt Stevens was asked to operate and did so on April 1, 1916. The operation revealed a few bands about the caecum, with fixation of the caecum in the pelvis just below the brim. The appendix was normal. The gall bladder was likewise normal. The lower loops of the ileum were somewhat distended and red. This condition undoubtedly accounts for the localized tenderness over the caecum. The appendix was removed and the membranous bands holding the caecum were divided. These were regarded as Jennesco's membranes. The incision was closed without anything further being done. The patient passed a very restless night and the next day was feeling very depressed, complaining of nausea, gas and abdominal pain. On April 3rd, patient complained of marked pain in the chest and developed a dry, ringing cough, accompanied with a thick, viscid sputum, tinged with blood. The temperature rose to 102 with pulse rate of 134 and respirations 40. The physical examination revealed marked congestion of both bases of the lungs.

The man remained in a very precarious state for a week. Four days after the operation the wound began to discharge a bloody, serous fluid. The next day, April 5th, the wound began to gape and discharge a great quantity of serous exudate. On April 7th, the wound was bulging wide open without any signs of infection and at

no time was any real purulent material seen. The patient passed his days in the utmost agony, it being almost impossible to move his bowels with the most drastic cathartics. He complained of severe nausea and vomited on several occasions. The patient existed in this manner until the 16th of the month.

Acting on the Roentgenological findings of hypertrophic exostoses of the spine, we began a series of injections of hectine—6 centigrammes each day for ten doses. At the end of this series he received four doses of three centigrammes of enesol.

Three days following the first injection of hectine, the wound showed some signs of healing. The patient was removed to the operating room, the edges were drawn together and the incision healed in the course of one week without any further trouble.

The patient left the hospital on the first of May, one month following operation, feeling entirely well. He then received another series of hectine and enesol, receiving in all ten injections of the former and six of the latter. The patient has since returned home. He feels well, has harvested a large crop, doing hard manual labor every day.

In reviewing this case, one might say that a diagnosis of visceral crises was far-fetched, but we believe after carefully weighing all the evidence, anamnesis, laboratory findings, operative findings, etc., that we are perfectly justified in making this diagnosis. In considering this case for diagnosis, several conditions must be thought of, any one of which might have been the prime etiological factor. Cirrhosis of the liver was seriously considered. As the man was an alcoholic, an early cirrhosis of the liver may simulate the symptom complex heretofore mentioned. This was ruled out by our operative findings. The liver was found to be smooth, normal in size, the edge under the costal margin and no evidence of portal vein stasis.

Gall bladder disease was thought of from a viewpoint of the anamnesis and the man's reflex pain, causing him such terrible disturbance of the intestines, accompanied by fermentation and formation of gases, rather points to a gall bladder disease, but in the absence of any localized pain, Hartmann's defense, over this area, also the lack of corroborative Roentgenologic evidence, we ruled out this hypothesis and operation revealed a normal gall bladder.

Gastric crises the man did not have. Only once in thirteen months did vomiting occur, and that following medicine prescribed by a physician, and his pain was constantly in the lower abdomen and lumbar regions. Appendicitis, our pre-operative diagnosis, was made by the Roentgen findings mainly. The fluoroscopic examination showed the appendix fixed in the pelvis, the caecum being ptosed and definitely fixed, and the appendix on manipulation gave definite pain. These three points,—abnormal position, fixation and pressure tenderness, led to the diagnosis of appendicitis with adhesions.

As noted above, we were completely in error in this diagnosis. The surgeon gave his opinion directly after the operation, that no relief could be expected from the operation and that a careful and complete examination of all the abdominal viscera was negative. Following the bad ten days succeeding the operation, during which time things went from bad to worse, the patient getting progressively weaker, with a wide gaping wound at site of operation, we reverted to the findings of the spine and in the face of a negative Wassermann, history and absence of all physical manifestations of syphilis, we decided to give immediately a drastic course of anti-syphilitic treatment with the hope of aiding the deplorable condition of the case. The result was so striking and as the treatment led to a complete return of health symptomatically, we feel that the diagnosis of intestinal crises is the only one tenable and that it explains the symptoms presented by the case, the operative findings and agrees with our ideas concerning the pathology found in the spine by the Roentgen examination.

On looking up the literature we find a remarkable paucity of data relating to intestinal crises. For instance, the Index Medicus and the Surgeon General's report for the past ten years contains no reference to this condition. With the assistance of the staff at the Lane Medical Library, the following references were found:

Brouardel et Gilbert,—Nouveau Traité de Médecine, Maladies de la Moelle Epinière par Dejerine et Thomas, entitled "Crises Entérogiques," "Coliques Intestinales des Tabétiques." They consist in very painful colics without any appreciable cause. They come on slowly and may proceed for several years, the apparition of the usual signs of tabes. Rectal tenesmus is sometimes complained of. There may be associated with it bladder symptoms.

Osler and McCrae in Modern Medicine, 1915, refer to visceral crises and speak of intestinal crises. One patient with trigeminal dissociation also suffered from frequent inexplicable diarrheas with intense abdominal pain until the proper interpretation of both was made manifest by the appearance of a series of tabetic symptoms. They refer to Charcot's work, compiled by De Bournville, but he makes no reference to intestinal crises, only speaking of gastric and vesical and laryngeal.

Starr, in his work, 1909, speaks of intestinal and rectal crises as less common than gastric, but may be the first signs of locomotor ataxia. They are, however, usually found in the second stage. Begin by pain in the bowels and rectum, attended by watery diarrhea, great tenesmus, rapid exhaustion and great thirst. These attacks may last two or three days.

Allbutt and Rolleston, System of Medicine, 1911, says: Analogous to gastric crises and sometimes associated with them, the intestinal crises consist of paroxysmal attacks of diarrhea, with or without abdominal pain, sometimes a patient having attacks of tenesmus, pain or other disagreeable sensations in the rectum. Some pains may arise in the region of the kidney, ureter and bladder

so as to arouse the suspicion of calculus. Anomalies of secretion may accompany these crises. Watery secretion of the bowel, paroxysmal fluxes of saliva, tears, sweating, even attacks of glycosuria.

In discussing the intestinal crises of syphilis, most authors mention diarrhea and rectal tenesmus. However, we found no reference to any case presenting these symptoms. Djerine says rectal tenesmus and diarrhea are sometimes complained of. He also states that these manifestations may occur years before the classical signs of tabes. Allbutt mentions lachrymation and increase of urine, both of which we met in this case. Starr notes the rarity of intestinal crises as related to gastric or visceral crises. We note in this case that the symptoms have been almost entirely of a paralytic ileus and which we believe in this case to be the result of disease of the lower neurons of the spinal cord and probably inflammatory in nature.

This case during thirteen months of observation developed no new symptoms, but a marked increase of severity of symptoms since the onset. It would appear to us that these symptoms in this case are the first indications of an oncoming tabes dorsalis. The changes in the spine, which led to our final diagnosis, have long been known to exist under the name of hypertrophic exostoses, thorns, spurs, spicules, hooks, lippings, etc.

Goldthwaite in his classification of the chronic arthritides attributes these conditions to chronic toxic processes, the etiology of which in many cases is quite obscure. We have recently found in a series of twelve consecutive cases a positive Wassermann associated with these findings. This case which we are reporting had a negative Wassermann, but is undoubtedly syphilitic, if one may judge from the response to the therapeutic means applied. We strongly suspected syphilis in this case on finding the hypertrophic lesions of the spine, but were led away in our diagnosis by the negative Wassermann, negative history and absence of all lesions of syphilis.

#### CONCLUSIONS.

1. If we are to judge from the amount of literature compiled on intestinal crises, we must conclude that this symptom complex is rarely met with.
2. As Dejerine has clearly pointed out, intestinal crises may be the first symptoms of an oncoming locomotor ataxia.
3. Jennesco's membranes involving the caecum and holding it fixed in the pelvis were misleading in this case and caused a faulty interpretation to be made of the gastro-intestinal Roentgen findings.
4. This case again illustrates the frequent fallacy of the Wassermann test and that syphilis must not be excluded because the reaction is negative. The hypertrophic exostoses found on the spine in this case strongly suggested syphilis to us. Other factors that point to syphilis must always receive consideration.
5. The Roentgenologic examination must be routine in all departments of medicine as well as surgery. From it may be gained the informa-



tion instrumental in clearing the diagnosis of obscure cases.

#### Discussion.

Dr. L. B. Crow: I would like to state that the patient has since returned to San Francisco and reports that he has gained 20 lbs. since we last saw him. He has had a few returns of the gastro-intestinal symptoms due to gas. I examined the gastro-intestinal tract externally and found that he still has localized tenderness over the caecum.

I think cases of syphilis simulating diseases of the gastro-intestinal tract are not reported in the textbooks to any extent. Cronin mentions that in the *Interstate Medical Journal* for 1914. Dr. Edwards of Chicago, in speaking of syphilis of the gastro-intestinal tract, says many conditions that simulate septic processes can be nothing else than a spirochaetal sepsis.

In discussing the diagnosis, it occurs to me that while I was an interne at Cook County, a man came in who had been diagnosed as appendicitis or some other abdominal complaint. I went over him carefully, and the blood count being low (7,000), with marked increase in the Achilles tendon reflex and springy pupils (while not diagnostic of tabs), the coincidence of the two factors led me to suspect a beginning locomotor ataxia. I called Dr. Julius Trinker, we went over the case carefully and he corroborated my diagnosis. The man was sent to the hospital and improved on anti-syphilitic treatment.

The literature on visceral crises is very scarce. Extensive research in this library and in Lane library gave us only four articles on intestinal crises.

Dr. Burt Stevens: I had the privilege of seeing this patient before the Roentgen examination was made, and the man was definitely an abdominal case and very confusing. For instance, his pain was in the right lower quadrant of the abdomen, while his greatest tenderness was a little to the right of the umbilicus and above it an inch or two. The history of his having been a heavy drinker, and tenderness in this location made us consider cirrhosis of the liver, and the character of the pain, gallbladder disease. It was not until the Roentgen examination was made that we any more than considered the possibility of appendicitis. There was little of interest to be found, aside from this tenderness, except that the left pupil was sluggish and slightly irregular, and his knee jerks were slightly accelerated. Consequently we considered one of the forms of syphilis, but when the Roentgen examination was made, the pathology of the lower quadrant in the appendix region caused us to agree that it was probably all due to trouble in this quarter and gonorrhea as the probable etiology in the formation of the spines. The examination of the spinal fluid was not made for the reason that the patient absolutely refused spinal puncture. Probably that examination, previous to the Roentgen examination or without it, would have been of great value.

At the time the abdomen was opened nothing striking was found in the abdominal cavity except these bands across the head of the cecum. The appendix was, to my mind, absolutely normal, although it was fixed with the head of the cecum. The ileum, just proximal to the ileocecal valve, was considerably distended, but it did not seem to me that there was obstruction enough to cause this distension, because on pressure, it readily emptied. The gall-bladder was normal. I explored his abdomen, palpated the kidneys, went over the stomach and the abdominal contents thoroughly, and all appeared to be perfectly free from any other signs of inflammation than those just noted.

Dr. J. T. Watkins: Dr. Burnham has left on my mind the impression that he regards hypertrophic arthritis of the spine as being always of luetic origin. He quoted, you will recall, twelve con-

secutive spines which presented hypertrophic changes and all of these patients as having been found to be Wassermann positive. I do not think Dr. Burnham wished to convey just that idea; but in any event I wish to dissent from it. I have seen a great many hypertrophic spines which could be laid to other causes, notably, the intestinal putrefactions; and while, as some one has said, it is only by God's grace that practically all men have not had syphilis, still I have known a goodly number of ancient spinsters with osteo-arthritic changes, to attribute which to such a cause, would be to couple their name with an unmerited reproach.

Dr. Hans Lisser: I was very much interested in Dr. Burnham's paper because I wonder if it does not clear up the following case. A man came to me with a letter from his physician diagnosing stone in the common duct. Subsequent examination disclosed no stone. He had had, since two months, three attacks of abdominal pain, very severe, with vomiting but without fever, mostly in the upper right quadrant, and of course the intestinal crisis mentioned by Dr. Burnham may simulate gallstone attacks as well as appendicitis. The plates showed no stones, nor did his gastro-intestinal plates show anything of significance. The Wassermann, by Dr. Oliver, was negative. There was no history, and absolutely no signs or symptoms assignable to lues, despite particularly careful examination. The abdominal condition being decidedly obscure, we fell back on chronic appendicitis. We did not do a spinal fluid in that case because there were no signs of neurological involvement. The fundi were normal.

The patient was operated on. Nothing was found in the abdomen, which was thoroughly explored, except a possibly mildly inflamed appendix, which was taken out. He was operated upon by a very careful surgeon and very skilfully sewed up with great attention to technic. Three days later he was wide open. He was operated again at once and this time silk worm gut through and through sutures were taken. Three days later he was open again. This time he was sewed up with silver wire at intervals of half an inch and he remained closed and has been well since then. No evidence of peritoneal infection was present on either occasion.

He has received no antiluetic treatment. I would like to ask of the surgeons present whether breaking down of an abdominal wound, carefully sewn up, in a strong, healthy man, can be due to other conditions than lues? It will be interesting to observe this patient. If his attacks of pain recur, a diagnosis of gastro-intestinal crises must follow, despite the absence of any history, signs or symptoms of syphilis.

Dr. G. C. Macdonald: I consider the case reported to be a typical one of so-called "intestinal crises," and if Dr. Burnham will consult Jonathan Hutchinson's last work on syphilis (the edition issued just prior to his death) he will find similar cases quoted therein.

What interested me in the report was the post-operative pulmonary inflammation, which I have observed occurring a number of times following the administration of ether, a few having terminated fatally. Chloroform, on the other hand, is less likely to bring about such a condition.

Dr. W. B. Coffey: I have a case at the present time in the hospital, referred for appendicitis. The man was in such agony that the physician who referred him told me he had been with his patient since three o'clock in the morning, and that opiates, hypodermically given, had afforded only temporary relief.

He gave the following history: Pain came on suddenly on the right side, especially painful in the right lower quadrant; with exacerbation of pain, he vomited several times.

His temperature was subnormal; pulse 60. There

was rigidity and pain over McBurney's point, with more or less tenderness and distension over the entire abdomen. The leucocyte count never went over ten thousand. Passing of renal stone was considered a cause of the crisis.

Dr. Burnham reported negative findings as far as the plates were concerned. The Wassermann was also negative.

Operation was postponed as the crisis appeared to be out of all proportion to the clinical findings. After a delay of twenty-four hours, the temperature, pulse and leucocyte count remained the same, with no abatement of the severe pain and rigidity. After several consultations and pressure from the family I operated and found a normal appendix.

After operation the pain continued with greater severity. Looking through the man's case history I found that he was a painter. Epsom salts cured the crisis.

Case history serves a very good purpose.

Dr. M. P. Burnham, closing discussion: I do not want to maintain that a hypertrophic spine is syphilitic, but it is peculiar to think that we had twelve consecutive cases that have positive Wassermanns. It is my opinion that hypertrophic exostoses of the spine have been rather overlooked as far as the etiology being syphilitic is concerned.

We arrived at our diagnosis finally on that finding. At that time we had seven or eight consecutive cases, and because 16 days following operation the man's condition was becoming progressively worse, we decided he might have syphilis and gave him this treatment. Opening of the wound without evidence of pus is exceedingly unusual.

Directly after giving hectine the wound healed up beautifully.

The Roentgen findings all pointed to chronic appendix disease with adhesions. In this case it was certainly in error, and such membranes as this appendix had probably bore no relation to his attacks.

Dr. L. B. Crow, closing discussion: Dr. Burnham, prior to the operation, maintained that the hypertrophic exostoses were due to lues, and I rather disagreed with him. As mentioned in the paper, the patient gave a history of gonorrhea, and I pointed out that these hypertrophic exostoses were probably due to this condition. With these findings (hypertrophic exostoses) by inference we have been able to make some very intricate diagnoses which otherwise might have been impossible, and in a series of this sort, one should give them at least the credit of leading to a diagnosis.

### ANEURYSM.\*

By CHARLES D. LOCKWOOD, M. D., Pasadena.

I have decided to present to the Surgical Society to-night the subject of Aneurysm, more especially the class of aneurysms which comes within the scope of surgical treatment. Although the individual surgeon sees but few aneurysms in the routine of his practice, nevertheless, in the aggregate the number of cases is large. When invited by the program committee to appear before you to-night, I attempted in the brief time at my disposal to review the articles appearing in the magazines which I regularly read; viz., *The Journal of the American Medical Association*, *Gynecology and Obstetrics* and the *Annals of Surgery*. I found reference to about 200 articles upon this subject during the past three years. Of these, I selected about fifteen representative articles, cover-

ing almost every phase of the subject, and upon these is based much of what I shall have to say to-night.

Little progress was made in the surgical treatment of aneurysm up to 1902, when Matas of New Orleans ushered in a new epoch in the treatment of certain classes of aneurysms. Like so many important discoveries in surgery and medicine, Matas' operation for aneurysms was stumbled upon almost accidentally. After failure to cure a brachial aneurysm by one of the older methods, i. e., compression, proximal and finally distal ligation, he opened the sac and found that failure of his previous ligations was due to two or three large collateral openings, through which blood reached the sac. After suturing these openings from within the sac, the tourniquet was removed and there was no bleeding. The sac was then packed and the patient recovered. This operation was in March, 1888, and although it was briefly reported, it attracted little attention. Since the publication of Matas' paper in 1903, over 200 cases have been operated upon by his method.

There are several different methods of dealing with aneurysm, the choice depending upon the size, location and nature of the aneurysm. In certain regions of the body, owing to anatomic consideration, there is no choice of operation; in others there is a wide field of choice, and success or failure will depend upon the type of operation selected. Aneurysms of the arch of the aorta are amenable to but one form of surgical treatment; viz., wiring. Abdominal aneurysms also are best treated by wiring, although Halsted's aluminum band has been successfully used and actual ligation has been performed. Matas' endo-aneurysmorrhaphy may yet be applied successfully to this type of aneurysm. Aneurysms of the smaller vessels, and especially the popliteal, may be treated successfully by a number of different methods; simple ligation, suture of the sac, excision, extirpation, arterial suture, etc. In aneurysms involving the great vessels of the neck, there is little choice; gradual compression by aluminum bands and Matas' operation may have a limited application, but in the vast majority of cases, simple ligation is the only effectual means and this is often a difficult and dangerous procedure.

The principal methods of dealing with aneurysm to-day are:

*I. Ligation.* This method is applicable to all aneurysms of the smaller vessels, in cases where the vessel involved is not a terminal one, nor one the ligation of which may cause extensive gangrene.

*II. Extirpation.* This method may be employed in much the same class of cases as ligation. It is more difficult than ligation and the mortality is higher. It should not be resorted to where ligation or some form of Matas' operation will produce results.

*III. Matas' endo-aneurysmorrhaphy.* There are two distinct types of operation employed, one the so-called obliterative endo-aneurysmorrhaphy, employed in those cases in which the parent artery is entirely lost at the site of the aneurysmal sac,

\* Read before the Los Angeles Surgical Society, April, 1916.

and those in which the vessel is so diseased or fragile as to preclude a plastic operation. In these cases there are always two orifices separated by variable intervals and there is no visible outline of the main artery in the interior of the sac. In such cases, no attempt is made to restore the parent artery, but the blood stream is interrupted at its entrance to the sac, the sac is opened and the arterial orifices entering the sac are closed by suture. The sac is then closed by superimposed layers, sutured with catgut. It is occasionally necessary to use skin flaps to complete the closure. The second form of operation is the reconstructive, in which an effort is made to restore the parent artery. It has a very limited field and can be employed only where there is a "well defined and deep furrow or gutter leading from the inlet to the outlet of the sac. This deep groove or fissure furnishes the outline of the parent artery, which is easily restored without obliterating the main channel." No drainage should be employed in non-infected cases. The chief advantages of Matas' operation are:

1. The collateral circulation is undisturbed.
2. There is no danger of impairing the accompanying vein.
3. The artery is obliterated over the smallest possible area.

**IV. Wiring.** This method, indicated only in aneurysm of the thoracic and abdominal vessels which are otherwise inoperable, was devised in 1864 by Moore of London, and later modified by Corradi. It is known as the Moore-Corradi method. A fine wire made of silver copper alloy is passed into the sac through a large insulated needle or small trocar, until about ten feet have entered. A galvanic current of ten to eighty milliamperes strength is now passed through the wire for from one to two hours, when the needle is withdrawn and the wire left in the sac. Little is to be expected in the way of permanent cure, but there is nearly always marked relief from pain and there is great temporary improvement.

**V. Gradual occlusion of Vessels by Bands.** It has long been recognized that the collateral circulation is a most important factor in the treatment of aneurysm, and surgeons have known that many aneurysms could be cured if occlusion of the parent vessel could be brought about slowly enough for an adequate collateral circulation to develop. Prof. Halsted of Baltimore developed such a method in 1905. It has proven of great value in the treatment of certain forms of aneurysm. The method consists in partially constricting the vessels by means of aluminum bands rolled around the vessel by a specially-constructed instrument. The aluminum band should be rolled tightly enough about the vessel so that no pulsation can be felt below the occluded area. Dr. Matas has taken advantage of this method of compression by aluminum bands to test the collateral circulation in the area supplied by vessels such as the iliacs, carotids and subclavians. Removable aluminum bands are placed around the parent vessel and sufficient constriction is made to obliterate the pulse beyond the occlusion. The effect of this

compression is then carefully observed over a period of time sufficiently long to determine the adequacy or insufficiency of the collateral circulation. If it becomes evident that the ischæmia is destined to produce gangrene of the affected limb, or unconsciousness in case of the carotids, the bands are loosened or removed. If the collateral blood supply seems adequate, it is then safe to proceed to radical operation in case of aneurysm affecting the extremities, or to leave the bands in place if the aneurysm affects the larger vessels not amenable to radical operation. We have here, then, a definite and safe guide in the treatment of aneurysms. It is possible by a temporary occlusion of a vessel to determine the safety or danger of a proposed ligation. If the collateral circulation proves sufficient, the patient will be saved the dangers of the so-called "ideal operation" of Lexer, i. e., extirpation with end-to-end anastomosis, or the difficult restorative endo-aneurysmorrhaphy proposed by Matas. Simple ligation or obliteration by Matas' method will be sufficient. Should the collateral circulation prove insufficient under temporary occlusion, it is possible to develop an adequate collateral circulation by frequent sittings of compression applied to the main trunk for varying periods, together with the application of heat and massage to the affected limb. Thus what would certainly prove a futile operation, done blindly, may be converted into a safe and certain surgical procedure.

This method of estimating the efficiency of the collateral circulation together with other valuable signs proposed by Delbet, Henle, Von Frisch, Korotkow, Pachon, Tuffier, Stewart, Moskowicz, and others, has placed blood-vessel surgery on the same safe basis that kidney surgery has attained, through ureteral catheterization, radiography and functional tests. Recent statistical studies on the treatment of aneurysm have also proven of the greatest service as a guide in the treatment of these lesions. The careful study of Dr. Halsted on the "Common Iliac" gives very complete information on this vessel and the whole subject of aneurysms has been carefully reviewed by Monard and van Vert in the French Surgical Review for 1910.

Two cases of aneurysm from the wards of the Los Angeles County Hospital were presented to the Society.

**Case 1.** A boy about fifteen years of age, who had been accidentally shot in the femoral region of the right leg. Soon afterward, a distinct bruit and thrill was discovered over the first portion of the femoral vessels. This was supposed to be due to the buckshot imbedded in the leg, but at operation, no tumor was found, no fibrinated clot and no injury to the vessels. There was an abnormal communication between the profunda femoris artery and vein, which was congenital in origin and not the result of trauma. Ligation of this communicating vessel caused the bruit and thrill to disappear. The condition recurred, however, when the boy again became active.

**Case 2.** A man about 35 years of age from the Psychopathic Hospital, with a very large, pulsating aneurysm of the right femoral, the result of a stab wound, and also a very large aneurysm of the right external iliac.



## UTERINE FIBROMYOMATA, THEIR CAUSATION, PREVENTION AND CONSERVATIVE TREATMENT.\*

### A Record of Individual Experience.

By W. A. BRIGGS, M. D., Sacramento, Cal.

Twenty-five or more years ago I attended for Dr. G. G. Tyrrell, during his illness, a woman in labor, in the fundus of whose uterus I found a fibroid three and a half or four inches in diameter, the existence of which was later verified by Dr. Tyrrell himself. The lying-in and lactation were superficially uneventful, but six months later, on examination, Dr. Tyrrell, to his surprise, and, being a surgeon as well as an obstetrician, perhaps also to his chagrin, could find no trace of the tumor whatever. It had been wholly and spontaneously absorbed. This observation remained latent in my memory until some years afterward when mammary extract was proposed, by Dr. Bell I believe, as a remedy for uterine fibroids, and the absorption of the fibroid during the lactation period at once recurred to me and afforded a basis of credibility for the proposed treatment.

In the treatment of uterine fibroids, reminiscence attaches, in my mind, to ergot as well as mammary extract. I witnessed in 1881 the gradual absorption of a large uterine fibroid, reaching or surpassing the umbilicus, under the prolonged use of ergot in liberal doses prescribed by Dr. G. L. Simmons. Gangrene loomed large in my mind as a sinister possibility, but nothing of the kind occurred, and, at the end of about a year, the woman returned to her home in Mexico in excellent health and quite relieved of her tumor.

First proposed by Hildebrandt in 1872 as a remedy for uterine fibroids, ergot had for a few years a limited vogue, but with results that demonstrated at least a moderate efficiency. Both clinical experience and laboratory experiment indicate that it stimulates contraction of uterine muscle and arterioles, and thus in a measure controls uterine circulation and nutrition, delays the growth, and indirectly promotes absorption, of adventitious tissue.

Hydrastis has, on the uterine circulation, an action clinically well established, synergistic with that of ergot. The use of these remedies therefore in conjunction with mammary extract in the treatment of uterine fibroids seems theoretically well founded and also, as illustrated by the following cases, practically justified:

Case No. 1. Miss S., 27 years of age, consulted me on account of menorrhagia in 1900. I prescribed ergot and did not see her again until May, 1901, when she was having more profuse bleeding. On examination, a symmetrical uterine fibroid was found reaching an inch above the umbilicus. A day or two later she had an enormous hemorrhage which so completely exsanguinated her that Dr. G. A. White, who was called in consultation, agreed with me that operation was hopeless. Hemorrhage was controlled by vaginal packing, ice to the abdomen, and ergot, mammary extract and hydrastis internally. Possibly because of the extreme anemia, menstruation was delayed and no further hemorrhage occurred. Hydrastis, ergot and mammary extract were continued with

iron as indicated. The tumor rapidly diminished in size and within eight months disappeared entirely.

A few months later Miss S. married and has since borne two children—one now twelve and the other nine—and has remained well until the present time. In this case medical treatment saved three lives, two of which certainly, and one probably, would have been sacrificed by surgery.

Case No. 2. Mrs. H., of Covington, Ky., 44 years of age, had consulted Dr. Reamey, an eminent gynecologist of Cincinnati, who had diagnosed a uterine fibroid and advised operation; menstruation regular but somewhat profuse; intramural fibroid reaching the umbilicus. Hydrastis, ergot and mammary extract were prescribed and continued; gradual reduction of tumor and final disappearance at the end of six months. Mrs. H. remains well at this date.

Case No. 3. Mrs. M., 51 years of age, has had menorrhagia for several years; hemoglobin 58 per cent.; fibroid uterus distinctly nodular extending two inches above umbilicus; mammary extract, hydrastis and ergot. Marked improvement in menorrhagia; gradual reduction in size and final disappearance of tumor and cessation of menstruation at the end of eighteen months; remains in perfect health at present date.

Case No. 4. Mrs. B., of Covington, Ky., 26 years of age; profuse menorrhagia for several months; uterine fibroid 2 by 2½ inches; mammary extract, hydrastis and ergot; relief of menorrhagia in two months, disappearance of tumor in five months. Remains well, but has had no children since recovery.

Case No. 5. September 10, 1905. Mrs. S., of Los Angeles, 43 years of age; history of menorrhagia, pelvic distress, ill health, previous diagnosis of uterine fibroid and proposed hysterectomy; fibroid uterus, nodular—extending one inch above navel and filling lower abdomen and pelvis; hydrastis, ergot and mammary extract, September 15, 1906; tumor one inch below umbilicus; mammary extract, hydrastis and ergot continued. September 16, 1907: tumor two inches above pubes. September 20, 1908: total disappearance of tumor. November 28, 1909: no return.

Case No. 6. October 25, 1905. Mrs. H., 56 years of age; menopause at 51; no flow until October 1, 1905, when free flow set in and continued for three weeks. Uterine fibroid extending one inch above navel and involving anterior lip of cervix; declined operation; mammary extract, hydrastis and ergot. October 10, 1907, fibroid size of small orange, soft and still involving anterior lip of cervix; no flow for several months; chronic nephritis with high arterial tension. September 5, 1912, tumor gone; no return of flow; dyspnea, secondary low tension and death from cardiac decompensation a few months later.

Case No. 7. Miss J., of Los Angeles, 28 years of age; history of menorrhagia and dysmenorrhea; fibroid uterus treble normal size; mammary extract, hydrastis and ergot; rapid symptomatic recovery. Examination one year later showed uterus normal.

Case No. 8. Miss K., September 15, 1906, 26 years of age; symptomless uterine fibroid extending six inches above pubes; mammary, hydrastis and ergot extract. October 18, 1907, tumor confined to true pelvis—about two and one-half inches in diameter; discontinued treatment soon after; returned October, 1915, on account of sterility; subperitoneal fibroid two inches in diameter to left of uterus; mammary extract. February, 1916, pregnant three months; tumor not measurably changed.

Case No. 9. Miss C., November 18, 1906; age 50; profuse menorrhagia; uterine fibroid filling abdomen and extending six inches above umbili-

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cus; mammary extract, thyroid extract, hydrastis and ergot. Treatment continued later with omission of thyroid extract with fair regularity until April 28, 1909, when tumor reached two and one-half inches above umbilicus. Treatment continued irregularly until June, 1914, when tumor was three inches above pubes, soon after which patient died of an injury.

Case No. 10. Mrs. P., of Los Angeles, 38 years of age; fibroid tumor reaching level of umbilicus; August 1, 1910, mammary extract, hydrastis and ergot; September 6, 1911; tumor slightly smaller; February 10, 1912; tumor reduced one-half in size. August 27, 1912; tumor reduced to one-fourth of its original size—now entirely within true pelvis; October 24, 1912; tumor still further reduced in size, since which time I have not seen the patient personally. June 27, 1916, her husband reports that Mrs. P. is entirely well—has no trouble whatever referable to the pelvis.

Case No. 11. Mrs. R., Nevada City; 44 years of age; menorrhagia, pelvic distress and irritable bladder; fibroid uterus filling pelvis and reaching two inches above pubes; mammary extract, hydrastis and ergot. September 10, 1907, distinct reduction in size of tumor and relief of symptoms. March 23, 1908, uterus twice normal size; symptoms entirely relieved. September 25, 1909, uterus atrophic, prolapsed; ball pessary. November 8, 1915; remains well. Still wears pessary on account of prolapse of atrophic uterus.

Case No. 12. Mrs. C., colored. March 10, 1907, 35 years of age; menorrhagia for several months with pelvic pressure symptoms; uterine fibroid filling pelvis and reaching umbilicus; mammary extract, hydrastis and ergot. July 6, 1907; tumor two inches above pubes. April 15, 1908, uterus entirely within true pelvis; tumor practically gone. June 7, 1916, remains well.

Case No. 13. Mrs. Mc., age 47. Menorrhagia for three years, uterus fibroid, eight inches in length and three inches in breadth; hydrastis, mammary extract and ergot; relief of hemorrhage and disappearance of tumor; later uterine prolapse and repair of perineum. June 12, 1916; remains well.

Case No. 14. Mrs. Mc., August 1, 1906, age 43; menorrhagia for several years; uterine fibroid  $2\frac{1}{2}$  by 4 inches; mammary extract, hydrastis and ergot. June 7, 1907; unchanged; hysterectomy at patient's request; recovery.

Case No. 15. Mrs. M., May 2, 1906; 46 years of age; profuse menorrhagia; carcinoma of breast removed one year ago; uterine fibroid extending one inch above navel; mammary extract, hydrastis and ergot. June 9, 1907, uterus four inches in length and entirely within pelvis, menorrhagia relieved. September 15, 1907, tumor gone. Death a few months later from metastatic cancer of lung.

Case No. 16. Mrs. R., February 5, 1907; 44 years of age; menorrhagia for three years; fibroid uterus eight inches in length; mammary, thyroid, hydrastis and ergot extract. November 20, 1909, menstruation normal; uterus four inches in length; hyperthyroidism—thyroid discontinued. May 10, 1910, uterus atrophic, menopause; hyperthyroidism. May 16, 1916, remains well.

Case No. 17. Mrs. B., March 5, 1907; uterine fibroid three by four inches; mammary extract, hydrastis and ergot; did not report.

Case No. 18. Mrs. C., Winters, March 12, 1907; 36 years of age; uterine fibroid reaching two inches above pubes; hydrastis, ergot and mammary extract. Three months later patient became pregnant; hysterectomy in third month; recovery.

Case No. 19. Mrs. B., May 18, 1907; 41 years of age; normal menstruation; fibroid uterus filling false pelvis and reaching three inches above pubes. November 18, 1908, tumor reduced one-half; menstruation regular. September 8, 1913, tumor two

by two and a half inches or less; menses regular. March 3, 1914, tumor gone; menopause. June 9, 1916, continues well; uterus atrophic.

Case No. 20. Mrs. P., Auburn, April 3, 1907; 47 years of age; uterine fibroid three by three inches; mammary extract, hydrastis and ergot. September 19, 1909; tumor one-fifth of original size. November 6, 1910, tumor gone; uterus atrophic, prolapsed; ball pessary. October, 1915, continues well.

Case No. 21. Mrs. M., May 2, 1907; uterine fibroid three by five inches; mammary extract, hydrastis and ergot. Did not report.

Case No. 22. Mrs. C., May 25, 1907; menorrhagia, neurasthenia, fibroid uterus, occupying left false pelvis chiefly and reaching within one inch of level of umbilicus; mammary extract, thyroid extract, hydrastis and ergot extract; did not report; later submitted to myomectomy and still later to hysterectomy at the hands of a San Francisco surgeon.

Case No. 23. Mrs. F., June 7, 1907; 47 years of age; menorrhagia for seven years, hemoglobin 45 per cent; nodular fibroid uterus three by five inches; no report.

Case No. 24. Mrs. B., September 1, 1907; 42 years of age; menorrhagia, neurasthenia, uterus fibroid reaching three inches above pubes; mammary, hydrastis and ergot extract. December, 1907, unrelieved; hysterectomy at patient's request; recovery.

Case No. 25. Mrs. H., August 5, 1907; 57 years of age; severe menorrhagia; fibroid uterus extending two and one-half inches above umbilicus. December 10, 1907; menorrhagia uninfluenced; declined operation; later history unknown.

Case No. 26. Mrs. —, July 25, 1908; 48 years of age; menorrhagia; intramural fibroid three or four inches in diameter; mammary extract, hydrastis and ergot intermittently until June 13, 1910, when although tumor was distinctly smaller, the menorrhagia continued; curettement, July 28, 1910; discontinued mammary extract; relief until April 23, 1914, when marked menorrhagia developed; uterine fibroid about one-half previous size; mammary extract, hydrastis and ergot with massive x-raying of pelvis. July 6th no hemorrhage for past two months, uterus normal.

Case No. 27. Mrs. W., June 1, 1909; subperitoneal fibroid filling pelvis and reaching umbilicus; mammary extract, hydrastis and ergot; treatment continued intermittently. June 2, 1913, fibroid distinctly smaller; fractional x-raying of pelvis. September 2, 1913, amenorrhoea; tumor very much smaller; no further report.

Case No. 28. Mrs. K., November 16, 1909; 40 years of age; uterine fibroid filling pelvis and extending three inches above pubes; mammary extract, hydrastis and ergot. January 14, 1910; tumor larger, impacted; declined operation. September 1, 1911, unchanged; discontinued mammary extract; fractional x-raying of pelvis. December 10, 1912, subjective improvement; tumor slightly smaller.

Case No. 29. Mrs. R., September 3, 1910; mucous colitis; menorrhagia; hyperthyroidism; uterus retroverted, fibroid; mammary extract, thyroidec-tin; fractional x-raying of pelvis. June 13, 1913, amenorrhoea from January to April; uterus retroverted, normal.

Case No. 30. Mrs. T., March 30, 1911; 39 years of age; extra-uterine pregnancy in 1901 with operation; pus tubes with general pelvic infection; both tubes removed with pedunculated uterine fibroid but on account of condition of patient, uterus was not removed; recovery. April 15, 1912, fibroid tumor filling both true and false pelvis; menorrhagia; mammary extract, hydrastis and ergot; fractional x-raying of pelvis. September 11, 1912, am-

enorrhoea since January 27, 1912; tumor distinctly smaller. January 16, 1914; tumor confined to true pelvis.

Case No. 31. Miss McK., July 1, 1911; 34 years of age; uterine fibroid reaching within two inches of the umbilicus, profuse menorrhagia; ergot, hydrastis and mammary extract and fractional x-raying of the pelvis for six months, which was then discontinued, and resumed for three months on February 25, 1914, without permanent improvement. Hysterectomy by Dr. Harold Brunn, recovery.

Case No. 32. Mrs. G., September 22, 1911; 43 years of age, uterus markedly nodular; fibroid reaching within two inches of the umbilicus; hyperthyroidism; mammary extract, hydrastis and ergot with thyroidectin; fractional x-raying of pelvis. January 14, 1914; tumor two and one-half inches in diameter, still somewhat nodular; suspicious abrasion of cervix. As patient was about to take a trip to Scotland, I asked her to see Dr. Howard Kelley who gave a radium treatment completing the cure. June 16, 1915; uterus normal; hyperthyroidism.

Case No. 33. Mrs. R., December 16, 1911; 50 years of age; menorrhagia; uterus nodular, four times normal size; mammary extract, hydrastis and ergot; fractional x-raying of pelvis. June 15, 1912; marked subjective improvement; uterus distinctly smaller; amenorrhoea. August 11, 1915, reported by letter that she had remained perfectly well.

Case No. 34. Mrs. B., May 20, 1912; 40 years of age; menorrhagia; uterus distinctly enlarged with subperitoneal fibroid, reaching umbilicus; mammary extract, hydrastis and ergot. February 1, 1913; fibroid two inches below umbilicus. Patient did not report further.

Case No. 35. Mrs. M., February 23, 1914; 46 years of age; uterus retroverted; two uterine fibroids, subperitoneal, one on right, two and one-half inches in diameter, on left one and half inches in diameter; cyst of round ligament; dysmenorrhoea, menorrhagia; mammary extract, hydrastis and ergot; massive x-raying of pelvis. October 2, 1914; fibroid reduced 50 per cent in size.

Case No. 36. Mrs. H., April 17, 1914; 48 years of age; chronic appendicitis; nodular fibroid uterus, profuse menorrhagia; mammary extract; massive x-raying. October 24, 1914; amenorrhoea since June 19, 1915; uterus still nodular but reduced to half its former size.

Case No. 37. Mrs. D., June 2, 1914; 41 years of age; menorrhagia; neurasthenia; uterus fibroid, three times normal size; mammary extract; massive x-raying of pelvis. November 1, 1915, amenorrhoea since August, 1915; uterus distinctly smaller.

Case No. 38. Mrs. W., April 18, 1914; 50 years of age; profuse menorrhagia; uterus fibroid, three times normal size; cervix lacerated and catarrhal; mammary extract, hydrastis and ergot; massive x-raying of pelvis. December 10, 1914; uterus of normal size; amenorrhoea since August 30, 1914.

Case No. 39. Mrs. L., January 23, 1915; 38 years of age; menorrhagia; uterus fibroid reaching two and one-half inches above pubes; hydrastis and mammary extract; massive x-raying. August 20, 1915; amenorrhoea since June 19; uterus three inches in length, tumor gone.

Case No. 40. Mrs. M., March 8, 1915; 39 years of age; menorrhagia since February, 1911; uterus fibroid, three times normal size; mammary extract, hydrastis and ergot; massive x-raying of pelvis. October 8, 1915, amenorrhoea since June, 1915, uterus normal.

**Discussion of Cases:** These case reports indicate the remarkable, but perhaps not invariable in-

fluence of mammary extract on uterine fibroids and menorrhagia, their most frequent and distressing symptom, an influence as illustrated in this series of cases, quite as marked in young women as in those approaching the menopause. Of the four cases under thirty years of age, three recovered rapidly and completely. Of these three cases, one has since married and borne two children and has remained well until the present—a period of fifteen years; one, although married, remains childless and the third, at last accounts unmarried, has not recently reported but she is a potential if not an actual mother, which she would not be had she submitted either to efficient surgery or to efficient radiotherapy. The fourth case under thirty, although rapidly improving, discontinued treatment before complete recovery, married at thirty and three years thereafter consulted me on account of sterility. Remains of the fibroid still persisted practically unchanged since the last previous record, eight years before. Mammary extract was prescribed and at this writing she is in the eighth month of pregnancy which promises to eventuate normally.

Of the 36 cases remaining, 4 made no report whatever; 1 improved slightly and 1 was unimproved under short treatment and disappeared; 1 under short and 1 under prolonged treatment were unimproved and elected hysterectomy; 1 became pregnant after three months' treatment and submitted to hysterectomy; 4 were greatly improved and 16 completely recovered under mammary, ergot and hydrastis extract; 7 recovered completely and 3 were greatly improved by these means, plus irradiation. Because of the urgency of the symptoms and the undetermined value of mammary extract, hydrastis and ergot were prescribed conjointly with mammary extract in the first case and, because of the seeming success of the combination, were continued in subsequent cases without change for several years.

How much ergot and hydrastis have contributed to these results it would be impossible to say. Latterly in a few cases I have omitted them for a time, but have resumed them later fancying or fearing that absorption did not proceed as rapidly under the sole influence of mammary extract. On the whole, I am quite inclined to believe that they have contributed materially to the results here reported.

Mammary extract, even with prolonged use, has not seemed to produce any untoward results. Occasionally, though rarely, the combination produced more or less gastric disturbance which subsided, however, on the suspension of hydrastis and ergot, although the mammary extract was continued. Other untoward results either from the combination or from the mammary extract alone I have not observed, even when their use was long continued. On the contrary, there was generally a distinct improvement in the physical health as well as in the morale of the patients, probably attributable chiefly if not entirely to the arrest of menorrhagia, the relief of pressure symptoms and the relief of mental strain due to fear of operation.



The mammary hormone probably antagonizes the follicular hormone or inhibits its production and thus moderates or prevents an excessive menstrual molimen and its consequent hyperemia, menorrhagia and local nutritive disturbances. The effective dosage therefore would seem to depend on the degree of excessive ovarian activity—the greater this functional activity the larger the quantity of mammary extract required to inhibit or antagonize it. A daily quantity of the extract representing from twenty to fifty grains of the fresh gland was used in the cases here reported. The dosage in several of the cases I am convinced was too small. This accounts perhaps for the comparative or even absolute failure of the treatment in a few of the cases and possibly also for the absence of gastric irritation occasionally noted by others. At present I usually prescribe thirty or forty grains daily and, in refractory cases, increase to fifty or sixty.

**Contra-Indications:** Pregnancy seems to be the only positive contra-indication to the use of mammary extract. In two of the cases reported, however, its continued use did not prevent pregnancy. In both of these cases mammary extract was given for some time before and for three months after conception and in a third case (in consultation) for the last four months of pregnancy without either preventing conception or interrupting pregnancy.

**Causation:** The facts that uterine fibroids are often either partially or wholly absorbed (a) after the menopause, (b) during lactation, (c) after removal of the ovaries, (d) after x-ray inhibition of ovarian function and (e) under the ovarian inhibitory influence of mammary extract and the further facts that uterine fibrosis rarely begins (f) before puberty or (g) after the menopause; that the uterus atrophies (h) during lactation (i) during periods of ovarian inactivity and that the uterus, ovaries, vagina, mammary glands, the entire female reproduction system (j) atrophies after the menopause, warrant the tentative inference that the development of uterine fibroids depends, in part at least, on local nutritive disturbances initiated and maintained by aberrations of ovarian function. The further fact that uterine fibroids are relatively more frequent in nulliparous women, although susceptible of a different interpretation, harmonizes quite as well with this inference. For sterility in relation to fibrosis may conceivably be a link in the chain either of causation or of sequence or of both one and the other. Contributory factors are probably chronic infections of the uterine mucosa and of the adnexa, uterine displacements and all other causes of pelvic stasis.

**Prevention:** Based on this inference, may we not formulate some tentative and yet rational principles of prophylaxis? And still further if the degeneration of uterine fibroids is a not infrequent cause of uterine cancer will not the prophylaxis of the former be at the same time a prophylaxis of the latter? This double prophylaxis would certainly justify the use of mammary extract in subduing excessive ovarian activity as manifested in abnormally frequent, profuse or prolonged menstruation.

Mammary extract stimulates the mammary glands and thus not only re-enforces its own action but, by continued use, probably also leaves these glands better able to perform their normal functions. This would seem to be suggested by Case No. 1, which, since the absorption of a large fibroid under an eight months' course of mammary extract, hydrastis and ergot, has borne two children and remains well at the present date—a period of nearly fifteen years. Cases 4 and 6 also lend countenance to this view as do several cases of menorrhagia of probably ovarian origin relieved for a long period if not permanently by mammary extract, but not reported here.

Whether or not, however, uterine hyperemia as shown by profuse, prolonged or too frequent menstruation be the result of excessive or perverted ovarian function, whether or not it be a factor in the development of uterine fibrosis, it certainly is a menace to the well-being of the patient and should be promptly corrected. For this purpose mammary extract, either alone or in combination with hydrastis and ergot and, in urgent cases, the X-ray, is usually sufficient.

Even if the prevention of fibrosis be impossible, its early recognition and treatment are surely a desideratum. Hence the family physician should urge with his women-patients a yearly if not more frequent pelvic examination to determine the presence or absence of this condition. Such examinations would protect the patients themselves as well as furnish data for the natural history of uterine fibrosis which as yet we possess only in the most fragmentary form.

**Conservative Treatment:** The frequency of dangerous complications of uterine fibroids is constantly and emphatically urged by the surgeon and generally accepted by the physician as a conclusive argument against conservative treatment of uterine fibroids. In fact no curative treatment other than surgical except by the x-ray, and that with scant and grudging courtesy, is recognized by either surgeon or physician.

The surgeon and family physician stand in quite different relation to these cases. The family physician sees or should see them early; the surgeon sees them either late or after serious complications have developed either independently or in consequence of the original fibrosis. The statistics in either case are not applicable to the other. If, as one author, and I think conservatively, estimates that 55½ per cent. of all women between the ages of 40 and 50 have uterine fibrosis, and the surgeon finds that of these cases reaching the operating room 10 per cent. are suffering with malignant degeneration, as no doubt occasionally he does, it by no means follows that uterine cancer has an incidence of more than 5½ per cent. in all women between these ages.

Adnexal disease requiring or necessitating operation, according to Mayo as quoted by Dorland, occurs in 30 per cent. of women with uterine myomata. Here again the surgeon speaks instead of the family physician. These are statistics of women in the operating room and not of women at large; statistics of women also who seek relief,

not always from uterine fibroids, but perhaps quite as often from concomitant but quite independent lesions of the adnexa, and not statistics of the whole body of women consciously or unconsciously harboring uterine fibroids. In the former case they are undoubtedly correct; in the latter they are certainly false. Notwithstanding the fact that the surgeon still regards uterine fibromyomata as his exclusive appanage, a not inconsiderable experience warrants the tentative belief that many of them lie at least in debatable territory. The stigma of statistical suspicion is insufficient to consign them dogmatically to the surgery. As surgeons can hardly claim more than 25 per cent. of cures in malignant disease of the uterus and the mortality of hysterectomy in average hands equals, if it does not exceed, the incidence of malignancy in uterine fibroids, it is difficult to appreciate the cogency of the surgeon's argument that all fibroids should be removed because of their tendency to malignant degeneration; the more so because malignant degeneration is generally a late and not an early complication of fibrosis.

The cases which may be rationally submitted to conservative treatment are (1) all of those cases in which operation is inadmissible, cases of extreme anemia (as in Case 1), of advanced cardiac or renal disease (as in Case 5), cases of severe diabetes, etc.; (2) all cases clinically free from the suspicion of malignant degeneration, of cystic or purulent degeneration, of necrobiosis, incarceration, pyosalpinx, and other serious pelvic complications.

Experience warrants us, I believe, in treating these cases vigorously with mammary extract, hydrastis and ergot, combined, in the presence of severe menorrhagia, with deep radiotherapy. Cases not responding to this treatment may still be dealt with surgically.

**X-Ray Treatment.**—In cases of otherwise uncomplicated uterine fibroids with menorrhagia that undermines the health, threatens the life of the patient or is refractory to mammary extract, hydrastis and ergot, radiotherapy is an effective, and, if carefully applied, probably a safe adjunct to these remedies. I began its use for this purpose in 1911 with an undeveloped technic-fractional and often-repeated doses of comparatively non-penetrating rays (7 or 8 inch spark gap) and sole-leather filter. Notwithstanding the comparative inefficiency of the method, beneficial results were evident. The technic was improved from time to time by the water-cooling tube, a lengthened spark gap, aluminum filter, massive doses and finally the Coolidge tube, the Bush control, elastic compression and the Trendelenberg position.

After forty the menopause may be established by from two to five treatments. In my opinion, it is the establishment of the menopause and not the dispersion of the tumor which is the immediate and proper object of radiotherapy—at any rate until we know more of the remote and possibly untoward effects of intensive irradiation. Remove the cause and the tumor will surely if

slowly disappear under the continued influence of mammary, ergot and hydrastis extract. With the new Coolidge water-cooling tube which produces a more penetrating ray, these results will doubtless be materially improved. Judging by my own not inconsiderable experience, the complicated method of cross-firing from multiple ports of entry, as proposed by Gauss, is quite unnecessary.

The X-raying does anatomically what mammary extract does physiologically—the former destroys the secretory structure of the ovaries, is destructive, while the latter merely inhibits its excess of function, is conservative. Moreover, the X-ray, at least if not used with great care, may produce remote, as yet undetermined and undesirable by-effects. Certainly as one undesirable by-effect, the X-ray does destroy the ovary as an endocrine gland. It establishes the menopause, accompanied generally by symptoms due to suppression of the internal secretion of the ovaries which mammary extract leaves nearly or quite unaffected.

**Technic.**—By bimanual palpation, determine as accurately as possible the position of ovaries and tumor in relation to the anterior abdominal wall just above the pubes. Direct the rays to the ovaries on either side through a one and one-half-inch port if they can be accurately located; through a two or two-and-one-half-inch port if they cannot. From four to eight one-and-a-half-inch ports will be sufficient if the accurately located ovaries only, and from four to eight two-and-a-half-inch ports if, in addition, an intrapelvic tumor is to be irradiated. The X-ray treatments should be given preferably during the premenstrual or early menstrual period, when the reproductive organs are hyperemic and at the height of their physiological activity; that is, while the uterus and its appendages are physiologically "sensitized" to the X-ray. The skin and the subjacent tissues should be exsanguinated and thus desensitized by means of compression through an elastic air bag inflated after the tube is in situ. Under these conditions, we shall obtain maximal effects on the uterus and ovaries and minimal effects on the skin, and subjacent tissues. I use a three-and-a-half m. m. aluminum filter and a ten-inch spark with a Coolidge tube. By these precautions, I have been able, in urgent cases, to administer four erythema doses through each of several ports of entry at one sitting without skin reaction. As a rule, however, to avoid the possibility of an unpleasant skin reaction, I have contented myself with a smaller dose—usually three erythema doses. These treatments should be repeated at each menstrual or premenstrual period—as nearly every four weeks as may be, but never oftener than every three weeks. In these treatments a wooden table should always be used; a metal table might short-circuit the high tension current through the patient with unpleasant if not serious consequences.

In pelvic and other deep treatments, I have used the Coolidge tube exclusively for fifteen months and find it immeasurably superior to any other tube I have ever used. By a uniform technic, it will produce rays of a uniform quality and quantity and

with the Bush control it can easily be graduated with scientific exactitude.

**Advantages of Proposed Treatment.**—By the plan here outlined, I am convinced that both the morbidity of uterine fibrosis and its mortality, direct, indirect and operative, can be materially reduced. Granting even that the theory of its etiology is erroneous and its prevention by the means here proposed therefore illusory, early diagnosis and prompt conservative treatment will certainly very materially reduce its mortality, (a) by permanently clearing up many cases in their incipency as in Cases 4 and 7, or in young women in more advanced stages, as in Cases 1 and 8, or in women approaching the menopause as in Cases 11, 13, 16, etc.; (b) by the prevention of malignant and other serious degenerations and complications by the prevention and cure of the conditions which produced them; (c) by early diagnosis and appropriate treatment of such degenerations and complications.

But this is by no means all—there will be a large saving in prospective or potential motherhood. In the cases here reported, seventy-six years of potential motherhood have been saved by conservative treatment and two lives have thus far been added to the succeeding generation which would have been certainly sacrificed by either surgery or radiotherapy. If we take these two lives as the basis of future generations and this I submit, although perhaps foreign to surgical processes of cerebration, is by no means ridiculous or chimerical, we shall have a sum total of salvage, actual and prospective, greatly exceeding the original number of patients. Both of the women, one who subsequently bore two living children (Case 1) and the other now in the eighth month of pregnancy (Case 7) would be unhesitatingly submitted to hysterectomy by the modern surgeon. This salvage of potential motherhood and prospective life made possible by the plan here outlined may, in the long run, far outweigh the immediate advantages claimed erroneously I believe, by present-day surgery.

#### TENTATIVE CONCLUSIONS.

1. Fibromyomata of the uterus are pathological reproductions of the normal uterine tissues.
2. Their capacity for rapid development and still more rapid involution is inherited from the parent organ.
3. Their exciting cause is uterine hyperemia of ovarian origin, often abnormal in degree, frequency or duration, especially when not physiologically suspended or counteracted by pregnancy and lactation and when accentuated by congestion of infectious or mechanical origin.
4. Mammary extract is a valuable remedy in the preventive, the symptomatic and the curative treatment of uterine fibromyomata. It should be given in liberal doses re-enforced by ergot and hydrastis.
5. By preventing and dissipating uterine fibroids mammary extract effectually prevents malignant degeneration.
6. In uterine fibromyomata mammary extract is rarely rejected by the patient, does not sterilize, is

free from untoward by-effects, has *per se* no mortality and, in the best and fullest sense of that word, is curative; while surgery, on the contrary, is frequently rejected by the patient, is occasionally followed by serious by-effects, generally sacrifices the reproductive function, has a distinct mortality and is curative only in the sense that death is curative of all bodily ills.

7. In all cases of uterine fibroids free from the suspicion of malignancy, the likelihood of cystic degeneration, necrosis, parasitism or other condition demanding surgical intervention, mammary extract, hydrastis and ergot should be given a thorough trial in conjunction with ovarian irradiation, if symptoms are urgent, before surgery is invoked.

8. In uncomplicated but urgent or refractory cases of uterine fibromyomata, after 38 or 40, inhibitory irradiation of the ovaries is an effective and, with proper precautions, a safe adjunct to mammary extract, ergot and hydrastis.

9. An efficient X-ray technic is a ten-inch spark gap, 3.5 m. m. aluminum filter, the Coolidge tube, the Bush control, desensitization of the skin and subjacent tissues by elastic air compression, two and a half or three erythema doses through from four to eight ports of entry in the Trendelenburg position, preferably during the premenstrual period every three or four weeks.

#### UPON THE MODERN TREATMENT OF BLADDER-TUMORS.\*

By MARTIN KROTOSZYNER, M. D., San Francisco.

The diagnosis and treatment of neoplasms of the bladder has, of late, undergone rapid and radical changes; in fact, the scientific recognition and the rational surgical attack of vesical tumors are accomplishments of the last three decades, during which more substantial progress in that direction was made, than during the equal number of centuries preceding that period.

The first record in medical literature upon the occurrence of bladder tumors appears in the middle of the 16th century, when Lacuna<sup>1</sup> in 1551 wrote his monograph entitled: "Methodus cognoscendi, extirpandique in vesicae collo carunculus." This famous pamphlet contains various noteworthy descriptions of bladder-tumors as encountered by stonecutters or accidentally found at autopsies. Likewise, in the literature of the 17th century only scant records of a few isolated cases of vesical neoplasm are found, the most noteworthy of which is the case of Covillard<sup>2</sup> of Lyon, to whose credit stands the performance of the first operation for removal of bladder tumor. Neither does the literature of the 18th century contain any substantial addition to the knowledge of the subject. At this period the designation "bladder-fungus" is first used by contemporary writers; Le Cat<sup>3</sup> and Warner<sup>4</sup> were the first to remove tumors of the female

\* Read before the San Francisco County Medical Society, August 29, 1916.

1. Quoted from Handbuch f. Urologie, 1905, Vol. II, p. 726.

2. Obs. Chirurg. Strassbourg, 1792.

3. Obs. Chirurg. Lyon, 1720.

4. Quoted by Clado.



bladder by the urethral route; and hematuria as a prominent symptom of vesical neoplasm is for the first time in literature mentioned by Chopart.<sup>5</sup> The first attempt at scientific classification of new growths of the bladder appeared in the fourth decade of the 19th century, when Civiale<sup>6</sup> presented an exhaustive study of vesical neoplasms, which he divided in cancers and fungi, and for the removal of which he recommended the intravesical application of the sling. Civiale's inspiring work did not find the recognition it deserved; for the literature of several of the consecutive decades, merely contains records of a few isolated observations without adding any new aspect upon the subject.

The really scientific era of the diagnosis and treatment of bladder-tumors sets in only at the end of the last century, when bolder surgical procedures, like the explorative incision, as first carried out by Volkmann and Thompson, became feasible under the protection of anti- or asepsis, when, furthermore, pathological anatomy rapidly assumed its predominating influence upon medical science by the fundamental work of Rokitsansky and Virchow, and when, above all, by Nitze's cystoscope the early diagnosis and clinical classification of bladder-tumors were rendered feasible.

To the French school belongs the credit of having presented us with the classical symptomatology of vesical tumors, and since the day that Dittel first was able to recognize cystoscopically a neoplasm of the unopened bladder, the way to its removal, by suprapubic cystotomy, was quickly paved by the brilliant work of Billroth, Czerny, Trendelenburg, and above all, by the genius of Guyon.

Comprehensive treatises upon the subject appeared from now on at rapid succession by Thompson, Küster, Kümmell, Guyon, and especially noteworthy are the exhaustive treatises of Albarran<sup>7</sup> and Clado.<sup>8</sup>

The rational treatment of bladder-tumors hinges upon the intelligent interpretation of their pathological structure, a passing consideration of which, therefore, seems unavoidable in this connection.

Up to a short time ago bladder-tumors, according to their clinical character, were divided into benign and malignant growths, the latter possessing features of rapidly spreading over all strata of the bladder-wall, and of forming metastases. As benign forms were considered papillomas, adenomas, fibromas and myomas, while the malignant forms comprised carcinomas, sarcomas and myxomas.

From a practical aspect, pedunculated tumors were differentiated from broad-based and infiltrating growths.

The best classification, obviously, is that based upon the histological structure of neoplasms, since it permits of recognizing the nature and origin of the growth and, by these means, of most valuable conclusions upon the clinical features of a given case. According to their histological structure, vesical neoplasms are divided into epithelial

and fibro-epithelial tumors (papilloma, adenoma, papillary carcinoma) connective-tissue growths (sarcoma, fibroma) and muscular-tissue tumors (myoma). Mixed forms of these tumor-species occur very frequently.

The transformation of benign papillary tumors into malignant forms was first mentioned in the literature in 1855 by Foerster.<sup>9</sup> Almost 40 years later in 1894, Colley<sup>10</sup> confirmed that view by painstaking and systematic histological investigations. The changes referred to, occur, as a rule, in the epithelial cells of the villi, at the border-line between epithelium and stroma, or at the pedicle of the growth; later on, epithelial cells may protrude in many ramifications deep into the pedicle and from there into the bladder-wall, so that in place of a papilloma a pedunculated carcinoma may ensue.

Not every papillary carcinoma is, of necessity, the outcome of a primary benign papilloma; on the contrary, primary pedunculated papillary carcinomas are met with quite frequently.

By systematic histological examination of the earlier stages of these cancerous growths it was proved, that they invariably originate from a small and circumscribed area of the bladder-epithelium, which, quite frequently is found to be the seat of definite changes, like increase in cells and irregularity of form and size of nuclei, and from which, later on, epithelial salients in form of ramified strands and dumb-bell shaped formations may protrude deeper into the bladder-wall.

These frequently met with transitional forms of bladder-tumors render the clinical diagnosis hazardous as regards prognosis and therapeutic attack. It is generally assumed, at present, that villous vesical tumors as a rule are only apparently benign, that they may harbor a malignant nucleus and that originally benign papillomas may become malignant by metaplasia. Thus it may occur, most frequently, that a truly malignant growth is diagnosed and treated like a benign neoplasm. Moreover, by these means, the histological examination of tumor-particles, either eliminated spontaneously with micturition or in the course of bladder-irrigation, or obtained by intravesical application of cystoscopic scissors or rongeur, is often frustrated as regards diagnostic reliability and shorn of its value as a therapeutic index.

I have purposely dwelt so long on the histological aspect of bladder tumors, as the uncertainty of the situation marks the keynote of our attitude in the attack of these growths. By good authority it has been advised to consider every bladder tumor a priori as malignant and treat it as such, and equally radical surgical measures have been recommended and actually carried out in the presence of insignificant and pedunculated papillomas, as against infiltrating broad-based neoplasms, possessing all the earmarks of malignancy.

There is, though, on the other hand, no chap-

5. *Traité des mal. des voies urin.*, Paris, 1791.

6. *Traité sur les mal. des voies urin.*, Paris, 1843.

7. *Les tumeurs de la vessie*, Paris, 1892.

8. *Traité de tumeurs de la vessie*, Paris, 1895.

9. *Ill. med. Zeitung*, 1855, Vol. III.

10. *Deutsch. Zeitschr. f. Chir.*, 1894.

ter in urinary surgery so absolutely discouraging as that dealing with the end-results of cases of so-called malignant disease of the bladder. I say designedly "so-called" as, apparent histological and cystoscopical malignancy fortunately does not always coincide with the clinical course in a given case.

In the past few years the extent of partial resection of the bladder for malignant disease of the bladder has been materially increased, and also transplantation of the ureters has become a relatively common procedure, which was carried out wherever there was a reasonable question of the ureters coming into the diseased area. In spite of these almost sweepingly radical measures I doubt whether end results have materially improved. Chute,<sup>11</sup> for instance, after a careful perusal of the operative end-results of 18 cases of malignant bladder growths, found only one that was without signs of recurrence at the end of three years after operation, and a similarly discouraging report was presented by Bier at the last meeting of the American Medical Association in Detroit. In order, therefore, to improve the results of early operations, a dissection of the lymphatics of the pelvis was, of late, recommended, to be included as an essential part of the operation, to be done as a routine measure much as dissection of the axilla is made in all breast cases. Thus enucleation of the regional lymph-glands, in connection with total removal of the bladder, and similar radical measures would, according to Chute, constitute the only reliable means of stamping out vesical malignancy.

In the face of the poor end results of radical surgery in bladder tumors, at the hands of most competent surgeons, the question arises: Is it under all circumstances necessary to remove bladder tumors in every instance? This question does not appear to be without justification, considering the fact, that many cases of vesical growth may exist many years, in fact several decades, without material detriment to the patient. Guyon reports observations of vesical neoplasms that existed 29 years, Albarran saw cases of 12, 14 and 30 years standing, Weir one of 37 years, Casper several cases of 20, and one of 28 years' duration, and Stein one authenticated case of 42 years' duration without distressing symptoms.<sup>12</sup> I am able to report a few similar observations:

Many years ago I had the opportunity, at Posner's Clinic in Berlin, to observe, cystoscopically, a typical broad-based and apparently infiltrating vesical carcinoma in a man of about 60, who was presented at various consecutive visits to the same clinic. The tumor had in all these years apparently not considerably increased in size, while the patient's general condition always seemed to be quite satisfactory.

In 1906 a man of about 70 was referred to me on account of hematuria. Cystoscopically, a papillomatous growth was noticeable, which, at that time, was diagnosed as papillary carcinoma.

This case was presented to a class of students for several consecutive years, during which no particular change in the cystoscopic aspect of the tumor could be ascertained. The patient declined operation and, except for an occasional attack of hematuria, never suffered from local symptoms, and claims to enjoy at present as good health as compatible with his advanced age.

In a man of 64 a typical broad-based and infiltrating vesical carcinoma was, on account of the patient's refusal to submit to surgical interference, treated by means of fulguration, with the result, that his distressing bladder symptoms increased in intensity. Since the cessation of local treatment the patient's local and general condition, save for occasional attacks of moderate hematuria, have been entirely satisfactory for the past 15 months.

This leads to the consideration of the symptomatic, or rather conservative treatment of bladder-tumors, by which the patient may be rendered comfortable for long periods. As the local treatment essentially coincides with that of cystitis, it does not deserve to be dilated upon in this connection. More worthy of consideration, though, is the treatment of hemorrhage, in the management of which I have never seen any benefit by the application of internal medication. Hypodermic injections of gelatine or horse-serum are painful, but should be given a trial; the efficacy of these remedies, though, is variable or, to say the least, unreliable. Better results are obtained with local applications upon the bladder-wall, and I consider injections of highly concentrated nitrate of silver solutions of great value in this emergency. The bladder having been emptied of urine, it is irrigated as clean as possible, and then about 100 c.c. of a 1:1000 to 1:500 silver-solution, which is gradually increased in concentration, are injected. Injection of larger quantities at one time should be avoided, in order to prevent rapid distention of the bladder-wall. This treatment is repeated every second or third day. By these means scar-formation over the bleeding focus is effected and hematuria may thus entirely stop. I know that methylenblue-injections have been used for the same purpose, but I could never reconcile myself to the rationale of applying any remedy short of one with a locally styptic effect. Similarly disappointing were my results with adrenalin injections.

The occasional application of an indwelling catheter is, in some cases, fraught with cessation of bladder-contractions; in this way the bladder may be temporarily put to rest, and thus hemorrhage may stop for an indefinite period.

The statement is ventured that, by these and similar means, hemorrhage may be stopped in almost all cases, especially in those of benign character, though I have observed several cases of undoubtedly malignant character, in which severe attacks of hematuria were successfully managed in this manner.

Considering the poor end-results of radical operative measures, the intravesical method of electrical cauterization deserves first place in our thera-

11. J. Amer. Med. Ass'n, lxxiii, p. 2266.

12. Quoted from Casper's Lehrbuch f. Urologie, 1910, p. 227.

peutic endeavors. Although the technical difficulties, connected with Nitze's intravesical sling and cautery, were considerably facilitated by improvements in the instrumentarium at the hands of various authors (Casper, Krönlein, etc.), the attack of growths situated on the anterior and superior bladder-wall was in most instances very difficult, if not almost impossible with that method. The total extinction of larger tumors required, moreover, so many sittings, that exhaustion and neurasthenia of the patient, so often observed as sequels of the treatment, prevented the continuation and successful termination of the same. For these reasons and many more Edwin Bier's<sup>13</sup> introduction of high-frequency cauterization of bladder-tumors marks one of the most epoch-making advances in our armamentarium against this grave malady. I do not wish to repeat statements and facts which are well known to every member of this section, and simply beg to call attention to a recent article of Howard Kelly,<sup>14</sup> in which he advocates the use of the dry endoscopic tube in connection with fulguration, as by these means many apparently broad-based growths might be found to be pedunculated. The cauterization of the pedicle by means of the fulgurating electrode suffices, according to that authority, in order to burn off seemingly large tumor-masses, which, later on, are eliminated from the bladder.

On the basis of my own limited experience I would not hesitate to subject every bladder tumor a priori to fulguration, until lack of success has proved the inefficacy of the treatment. Then only I would consider indicated excision of the tumor through suprapubic cystotomy, if that procedure should not appear, in all probability, to become frustrated in its results by the location of the tumor at or near the trigone, involving one or both of the ureteral openings. Personally I have not seen good results from the more radical procedures connected with transplantation of one or both ureters and would be inclined to reserve these patients, wherever indicated by the symptomatology of the case, to more conservative or rather expectant treatment, though I am convinced that Watson's operation, viz.: bilateral Nephrostomy, eventually as a sequel to total cystectomy, may in the presence of exceptionally distressing symptoms, be strictly indicated and should be then carried out, as being preferable to a miserable existence.

#### Discussion.

Dr. Henry Meyer: I have had quite a large experience in removing bladder tumors with the operating cystoscope. We know from the reports of Nitze, Casper, and other men, that the end results after removing papillomata with the operating cystoscope have been flattering, compared with surgical procedures.

In regard to whether or not we should remove all tumors from the bladder: Papillomatous tumors exist in many people for years and produce no discomfort, except an occasional hemorrhage. Dr. Krotoszyner mentioned a case I saw with him

some years ago; a very old man with a large pedunculated papilloma, whose only symptom was occasional bleeding. That man is very comfortable and undoubtedly he will live until the end of his days comfortably, showing that these tumors do not always become malignant.

In the treatment of hemorrhage resulting from papillomata, 1 to 4000 adrenalin solution, or 10% antipyrin solution, allowed to remain in the bladder, will stop most cases of hemorrhage.

In the case Dr. Krotoszyner mentioned—where the patient had a large section of bladder removed—I examined him some time ago and told some of his family that he had carcinoma. The growth did not look like an ordinary pedunculated affair; on the contrary, there was a broad base and very angry appearance.

In regard to the use of the operating cystoscope, I agree with Dr. Krotoszyner when he states that it can never be a universal operation because of the skill required; however, the necessary skill can be acquired and the results are certainly good. We cannot lay aside the wonderful results reported by the men I have referred to.

I have operated 36 or 37 cases of papilloma with the operating cystoscope and have seen three recurrences. I have had no trouble in getting the patients to come for their sittings. I have never used anesthetics, local or otherwise, and the patients walk out of the office. It is very important, after removing these growths, that the surface from which they sprung should be thoroughly cauterized.

It would seem that the high frequency method of treating tumors (although I have had no experience with it) offers a great advantage inasmuch as it can be performed by anyone accustomed to the use of the cystoscope. More patients could be benefited than by the use of the operating cystoscope if the results are as good, although I do not know that the end results are as good. It will take some time to determine this point.

Dr. L. C. Jacobs: When these cases with hematuria come into the urologist's hands, they should be cystoscoped. The points of hemorrhage can be frequently controlled by the application of the fulgurating electrode. I believe the ideal method is the fulguration method; it is simple, requires no great skill, is not severe upon the patient (inasmuch as the pain associated with it is negligible), and with this method you can keep the patient under control. The fulguration method necessitates frequent treatments at intervals of about a week and gives one an opportunity to observe the character of the tumors. After treating one of these affairs three or four times, and no improvement seems to occur, we are safe in stating that it is malignant and demands operative procedure.

Dr. W. P. Willard: In talking with a number of men who have worked with the fulguration method, many of them look at it with some disfavor because in many malignant cases the growth is accentuated by the application of the high frequency current. With that idea in view, Young is using radium applications for tumors in the bladder. By means of a cystoscope carrying a cartridge at the end, radium is applied directly to the tumor. By means of a lance mechanism the radium can be placed either on the anterior superior wall, or close into the internal sphincter. I want to bring out especially the fact that the high frequency current is apt to increase the growth rather than relieve the condition.

Dr. Martin Molony: Dr. Henry Meyer states that he considers the Nitze method of treating papilloma of the bladder by galvanic cautery a valuable one.

Most authorities, especially in the east where

13. J. Amer. Med. Ass'n, May, 1910, and Centralbl. f. Chir., 1913, No. 34.

14. J. Amer. Med. Ass'n, March 4, 1916.



fulguration with high frequency current was first developed in the treatment of vesical papilloma, hold that this latter method is far superior to any other.

Keyes and Geraghty, who have large experience, positively state that fulguration should be the treatment selected for papilloma, both benign and malignant, in which there is no infiltration.

Pedunculated papilloma can be snared off and the base treated by fulguration. The action of the D'Arsonval current is somewhat like radium and penetrates deeply into the diseased tissues.

As a typical example of the results obtained by this method quite recently, I snared off a moderately sized papilloma with a well-defined pedicle shaped like a mushroom. The patient, who was 76 years old, had a history of severe hemorrhage about thirty years ago with similar recurrences for two or three months before I saw him. In this interval there were many attacks of cystitis and his general health was poor.

The growth was snared off and the base well sparked with the D'Arsonval current on two occasions. Cystoscopy, four months later, showed no trace of the growth. The mucous membrane was quite smooth and showed no indication of any scar except that the orifice of the ureter, to which the growth was in close proximity, was somewhat distorted. There was no impairment of the orifice as a No. 8 catheter was passed easily. The patient's health improved and his weight increased 36 pounds in four months.

The immediate result in this case is typical of a number of similar cases reported and far excels any radical operative procedures.

Dr. Henry Meyer: Dr. Molony misunderstood me when he remarked that I said that the operating cystoscope was more valuable than the fulguration method. I said I only knew the good end results from the use of the operating cystoscope. We should make a comparison of the end results with the use of the operating cystoscope and with other methods, such as high frequency. I would like to hear if Dr. Krotoszyner has any statistics bearing on the end results from the treatment of papillomata with fulguration.

Dr. Krotoszyner, closing discussion: I cannot answer Dr. Meyer's question as to the end-results of my work with fulguration, since I have not used that method long and extensively enough as to permit me to draw satisfactory conclusions. Statistics in that direction, as recorded in the literature, seem to be very favorable, according to which much better temporary and permanent results are obtained with fulguration than those contained in the last extensive report upon Nitze's method, which was published some years ago by Weinrich. The greatest drawback to Nitze's method, to my mind, is its difficult technic, which was always a drawback to its popularity, notwithstanding the fact that in Dr. Meyer's skilful hands this work has yielded such excellent results as he has reported.

Fulguration with the D'Arsonval current is certainly preferable to the Oudin method, as cauterization and total destruction of the pedicle is materially facilitated by these means.

I have not mentioned in my paper anything concerning radium treatment, as that method does not seem to be ripe for discussion at this time.

While excellent operative results may sometimes be obtained, even in advanced cases, at the hands of skilful surgeons, the question, nevertheless, arises whether such patients might not have remained comfortable without surgical treatment, and at present the consensus of opinion seems to gravitate towards a more expectant treatment of bladder tumors, unless distressing symptoms render severe operative procedures unavoidable.

## TUMORS OF THE KIDNEY.\*

By STANLEY STILLMAN, M. D., San Francisco.

When I was asked by the Chairman of the Urological Section to contribute a paper on Tumors of the Kidney at this Symposium, based as much as possible on personal experience, I cheerfully accepted the invitation, honestly believing that I had seen a considerable number of cases; but as has been often the case with myself and perhaps with some others too, when it came to facts, I could find in my personal records of 25 years only 7 cases of renal tumors, excluding pyo- and hydronephrosis and polycystic kidney, and of my immediate associates one has seen 3 cases, another 2, and another 1; so that in our experience tumors of the kidney are much more infrequent than we thought. In 1885, S. W. Gross collected all the reported cases that had been operated upon up to that time and the number was only 47, of which 33 were diagnosed sarcoma and 14 carcinoma. Lotheissen reported in the *Archiv für Klinische Chirurgie*, in 1896, 9 cases, 5 of sarcoma and 4 of carcinoma, and A. B. Johnson reporting all the cases of kidney operations at the Roosevelt Hospital in New York from June 1st, 1890, to October 1st, 1898, gives 6 cases of tumor, 3 or carcinoma, 2 of sarcoma and 1 of "myo-chondra-adenocarcinoma probably originating in a supra-renal rest." As Grawitz did not publish his observations until 1883 in Virchow's *Archiv* on the close resemblance between the cells of most kidney tumors and those of the supra-renal capsule, his belief that these tumors originated in aberrant supra-renal rests in the kidney was not generally accepted for many years. The term hypernephroma was suggested by Lubarsch in 1894 for these so called Grawitz tumors and neither term appears in any of these records. Recently the term Mesothelioma is being used. It is the most common form of kidney tumor and is most interesting and important from the fact of its relative frequency, its histology and because of its malignancy, particularly as regards metastasis.

J. D. Barney, of Boston, in 1913 succeeded in getting together 74 cases of proved kidney tumor from the records of the Massachusetts General Hospital of the previous 30 years. R. H. J. Swan of London based a lecture on kidney tumors, published in the *Lancet* in 1913, on an experience of 10 cases of his own in the Brompton Cancer Hospital and 2 of his colleagues. Of the 74 cases occurring in Massachusetts General Hospital 27 were hypernephromata, 7 sarcomata, 7 carcinomata, 3 adenomata and 1 endothelioma; the remaining 24 had not been subjected to microscopical examination. Of course, many of these would have been classified now as hypernephromata. Swan gives the percentage of hypernephromata as 75-80% of kidney tumors. Eusterman, in 1911, reported 36 cases of renal tumors operated on at the Mayo Clinic in the previous 10 years; of these 36 or 71% were hypernephromata, 7 were car-

\* Read before the annual meeting of the California State Medical Society, Fresno, Cal., April 20th, 1916.

cinomata (2 secondary to stone) and 4 sarcomata. Of my own cases 3 were hypernephromata, 1 adeno-carcinoma, 1 carcinoma secondary to stone and 2 sarcomata in infants. As a matter of fact, all the statistics previous to the last 10 or 15 years on the relative frequency of the various malignant tumors of the kidney are practically worthless, as up to 1883 all the hypernephromata were classified as either adenoma, carcinoma or sarcoma, and for many years later many were, and at the present time perhaps some still are. Garceau's monograph on Tumors of the Kidney, published in 1909, contains the most satisfactory classification we have to-day. *Clinically* any tumor of the kidney that gives rise to *symptoms* had better be regarded as malignant and treated accordingly. While there are benign tumors of the kidney, they are quite rare and are usually found by accident or at autopsy and they are never clinically apparent unless they attain a large size which they very rarely do, or lose their benignity, which they are apt to do particularly the adenoma.

The diagnosis of renal tumor is not always easy. In my own cases the diagnosis was made in five before operation, but the diagnosis of tumor was also made in a good many more that were *not* tumors of the kidney. In one case that was not diagnosed the patient was an infant about 18 months old and while at first a diagnosis of sarcoma of the kidney was made, it was changed to probable tuberculosis peritonitis of the fibrinoplastic type. The belly was greatly distended and there was a large immovable tumor mass on the left side but it had a thin edge anteriorly and there was some ascites. When the child was relaxed another mass could be felt in the right iliac fossa. There was an area of resonance behind the tumor and several areas of resonance between it and the abdominal wall. All of these abnormalities were due to the fact that a large sarcoma of the kidney had invaded the peritoneal cavity by separating the layers of the mesentery of the small bowel in two places, pushing aside the vessels, and one of the processes of the growth had extended across the abdomen to the right iliac fossa. It had also penetrated the inner layer of the meso-colon and had crowded part of the colon back toward the loin. It looked like a desperate thing to undertake but was successfully removed without ligating any of the mesenteric vessels, but leaving several large rents in the mesentery of the small bowel and colon. The infant died five weeks later of septicaemia following an otitis media. No metastases were found at autopsy. With the exception of this case and the one of carcinoma secondary to stone, the others all had a more or less freely movable tumor which was rounded wherever it could be felt; no thin edge as in the above case and as is present in enlargements of the spleen or liver. The tumor is by no means always easy to detect and Swan recommends that both the knee-chest position and Israel's method be employed in doubtful cases. The latter consists in placing the patient on the sound

side with the thighs well flexed and palpating the kidney by bimanual pressure. It is evident that the detection of a tumor depends on the size and location of it. A fairly large tumor of the upper pole may escape palpation though it may push the kidney down far enough for the normal part of it to be felt. In infants the tumor is usually overlooked by the parents till it is of huge size,—the child being regarded as pot-bellied. This was the case in both of our cases of sarcoma. While, of course, tumor is one of the diagnostic triad, it is necessarily absent in the early stages, and if the other two symptoms of pain and haematuria cannot be explained after careful physical examination including cystoscopy, ureteral catheterization and X-ray plates, its absence should not counter-indicate an exploratory operation, any more than the absence of tumor in suspected cancer of the stomach should counterindicate operation. In all of our cases except the two sarcomata in children, *haematuria* was the initial symptom that impelled the patients to seek medical attention. It was of an intermittent type in the three cases of hypernephroma,—many months intervening in one case between hemorrhages. The hemorrhage was generally quite profuse, independent of particular exertion, and in all three cases blood casts of the ureter could be seen. The two cases of sarcoma did not have haematuria,—they rarely do. According to F. McG. Loughnane (Br. Journal of Surgery, July, 1914) in 72% of 35 cases of renal sarcomata in infancy collected by him, the urine was negative; in 28 it contained either blood or albumen.

The case of adeno-carcinoma had intermittent hemorrhages but no blood casts of the ureter, and the bleeding was not so profuse as in the hypernephromata. The case of carcinoma secondary to stone had blood constantly in the urine while under observation but not enough to form clots. Of the 74 cases of kidney tumors collected by Barney, in 39 haematuria was noticed by the patient as the initial symptom. It occurred alone in 18 cases. Pain alone occurred in 25 and tumor alone in 15. In combination with tumor alone haematuria occurred 3 times, with pain alone 15 times, and with pain and tumor 16 times. According to Loughnane haematuria occurs in 90% of renal tumors in adults and in 72% is the initial symptom.

Pain was a marked symptom in only one case and was of a steady, dull dragging character, and was experienced for some months before the initial hemorrhage occurred. Two of the patients in whom blood casts of the ureter occurred had sharp pain at times with nausea, which was probably due to the passage of clots down the ureter. They did not complain of pain except during the attacks of hemorrhage. The case of carcinoma secondary to stone experienced no more pain than a stone filling all of the calices would account for. The diagnosis was not made in this case previous to operation. The kidney was not palpable and was enlarged at the upper pole only. The X-ray showed the stone but not the carcinoma, which

was not large but which had extensively invaded the surrounding tissues.

Thus the symptoms in all these cases conform to those generally given in the diagnosis of renal tumors, except that pain was less frequent and severe than one would expect.

In a case of hypernephroma related to me by Dr. I. W. Thorne pain was very pronounced and preceded the discovery of the tumor by some months. It was particularly severe at night, and this is a point of diagnostic importance, as the pain may and often does come on during sleep, differing in this from the pain caused by renal calculus. The pain in this case was believed to be due to a large irreducible hernia on the same side. There was never any haematuria in this case and the tumor increased rapidly in size after it was once discovered. At operation it was found that the renal vein, and probably the vena cava, was filled with growth, for shortly after the nephrectomy the lower limbs became greatly oedematous. Death occurred in seven months, and at autopsy the pelvis and abdomen were filled with metastases. Dr. Rixford reported to me that the case of hypernephroma operated on by him was still alive and well after 18 years. The tumor was a large one—nine inches in diameter, with much adventitious blood supply from the mesentery of the colon and abdominal wall, was noticed five months previously by the patient, who also had observed blood and "long red worm-like strings in the urine a month before the tumor was felt. Pain was also a marked feature of her case.

Now a word as to the mistakes in diagnosis. On the whole I think it is easier to diagnose tumor of the kidney than it is to exclude it. The principal cause of error is in thinking of tumor at all. One usually thinks of kidney tumor as a probability, whenever confronted with a mass in the loin, instead of as a rather rare possibility only. Hydro- and pyo-nephrosis can be and have been by us mistaken for kidney tumors. Cancer of the splenic and hepatic flexure of the colon and of the ascending colon have been considered as probable tumor of the kidney. A large carcinoma of the liver projecting from the concave surface of the right lobe and secondary to a carcinoma of the stomach, which itself had given no symptoms, occurring in a healthy looking woman of 30, was the cause of another mistake in diagnosis. A pedunculated fibroid of the uterus, which had become adherent to the omentum and finally received its blood supply entirely from it, lost its attachment to and for the uterus and formed an attachment to and for the parietes on the right side external to the ascending colon, which was possessed of an unusually free mesentery. This led to a diagnosis of tumor of the lower pole of the kidney because the colon passed to the inner side of a tumor apparently connected with the kidney. The adherent omentum changed the shape and to some extent the consistency of the tumor. Another mistake was made, not by me but by one of my associates, in mistaking an hypertrophied

right kidney that was giving rise to haematuria for tumor. A piece excised for microscopical examination showed only arterio-sclerosis. I will not burden you with reminiscences of all our mistakes, but most of them have been due to a failure to remember certain things, and some of them to the fact that they were made before the days of cystoscopy, ureteral catheterization and Roentgenography. At the present time I try to remember that tumors of the kidney are not common,—that they are not necessarily painful except when bleeding, that they are not tender—or very moderately so,—that they are not accompanied with fever, that they do not raise blood pressure, that they do not have sharp edges and that they do not occasion blood or mucus in the stools or occasion partial obstruction of the bowels unless huge.

It may be well to remember that Bland Sutton says regarding sarcoma, that they occur during the first five years of life and again between 30 and 50 years of age, but that only sporadic cases occur between childhood and 30 years. In childhood it must also be remembered that according to Loughnane, "the paucity of early symptoms offers an insuperable barrier to early diagnosis," and that "a painless and progressive swelling of the abdomen is the cardinal symptom of renal sarcoma." In distinction to the adult, however, slight fever, 99-101, was the rule in these cases. Cystoscopy and ureteral catheterization cannot be carried out in the very young but examination under general anaesthesia is of great importance and should be resorted to more frequently than it is.

*As to the prognosis;* of the seven cases which form the basis of this paper one is living after two months. This was a case of adeno-carcinoma involving the lesser pole only and without metastases so far as could be determined. It was still confined within the capsule of the kidney but had invaded and projected into the pelvis. The prognosis is better in this case than if it were a sarcoma or hypernephroma. Of the hypernephromata one lived two years and eight months and had recurrence in the bladder. There was a recurrence of haematuria about 16 months after operation and the cystoscope showed many growths on the bladder wall. Garceau reports only one case of metastasis in the bladder in 176 cases of hypernephroma. The immediate cause of death was apoplexy. Another had metastasis in both lungs and died in six months. The third died eight months after operation. The patient went home to the country and had hemorrhages from the lungs before death, which was ascribed to tuberculosis. There was no autopsy. None of the patients died of the immediate effects of the operation itself, though the case of carcinoma secondary to stone lived only three weeks.

Of the two cases of sarcoma in children one lived five weeks, and the other two and one-half months.

None of the cases showed any evidence of metastases at the time of operation. It must not be forgotten that metastases are sometimes the first



evidence of the trouble, and that in hypernephromata metastasis is very often in the bones.

The prognosis is notoriously bad in malignant tumors of the kidney, and the most distressing feature of it is that it bears little relation to the size and duration of the growth. A very small hypernephroma may invade the vessels and metastasize very early as has been emphasized by Scudder (*Annals of Surgery*, 1906), and a very large one may not metastasize at all, as in Dr. Rixford's case. Recurrence is said to take place in 80% of the cases, and in over 70% of these within the first year.

Recurrence is rare after five years but has occurred as late as 10 years. Swan reports two out of eight cases free from recurrence; one at two years, and one at one year and eight months. Of the 47 cases reported by Gross, two were alive and well three years after operation. Of Lotheisen's nine cases, two of adenocarcinoma were alive, one at two years and eight months, and the other at 13 months after operation. Of the six reported by Johnson none lived more than three months. Scudder, in 1906, reporting end results in 12 cases of hypernephroma stated that all but one, a recent case, had died of metastasis.

On the other hand, Wagner finds records of 34 cases which remained well from two to 18 years, of which 21 had passed the three year limit. Loughnane records 12 cases of nephrectomy in infants, of which four were surviving after three years and three after 10 years. He states that the operative mortality has fallen from 76% in 1885 to 22% in 1902 and to 7.7% in his series.

Personally, I feel that if careful physical examination, including X-ray plates of bones if necessary, fails to disclose any evidence of metastases, nephrectomy should be undertaken. The operative mortality at the present time, even in infants, is not sufficient to counter-indicate it, and while the prospect of ultimate recovery is not encouraging, neither is it in cancer of the stomach nor in malignant tumors elsewhere. Of course, early operation is the desideratum, but perhaps more than in the case of any other organ the possibility of early diagnosis is limited. Still progress is being made, and I feel sure that other frequent exploration of the kidney by operation should be done, and is indicated for persistent pain, even if it is not severe, in the kidney region that cannot be satisfactorily explained, even in the absence of haematuria or tumor.

So far as the operative technic is concerned, the tumor may be attacked through the abdominal incision or a lumbar incision, or by a combination of both. The abdominal incision was used by us in the two cases of large sarcoma in infants and was Langenbuch's incision except that it went through the rectus muscle instead of the linea semilunaris. The peritoneum covering the tumor was incised externally to the colon and the enucleation, clamping of the pedicle and delivery of the tumor, accomplished as rapidly as possible. The vessels were then separately tied and the abdomen

closed without drainage. In adults the incision we used was in every case a lumbar incision beginning at the 12th rib, passing the border of the erector spinae muscle to the crest of the ilium and then parallel to this and half an inch above it as far as necessary across the abdomen, practically Koenig's incision. If more room was needed above, part of the 12th rib was excised sub-periosteally, the rest removed with Rongeur forceps. In all but the carcinoma secondary to stone the tumor could be delivered sufficiently to reach the pedicle from behind and in no case was a clamp applied to the pedicle—the vessels were carefully isolated and the effort made to ligate them, particularly the veins, as far as possible from the tumor, without detaching any tumor that might have invaded them. As much as possible of the perirenal fat was removed and the wound sometimes drained, sometimes not. Morris strongly advocates a combined abdominal and lumbar incision. The abdominal incision permits more thorough inspection of the renal vessels and the neighboring structures as well as the opposite kidney. The lumbar incision permits of enucleation of the tumor without putting a strain on the vessels as it is crowded toward the spine and not away from it. The vessels are secured from in front with less risk of injury he claims, than if either incision is used alone—and the tumor more easily delivered with the assistance afforded by a hand in the posterior wound.

#### TREATMENT OF DRUG AND ALCOHOLIC ADDICTIONS.\*

By A. C. MATTHEWS, M. D., Napa State Hospital.

That the subject of the care and treatment of the unfortunate alcoholic and drug habitue has been a neglected as well as puzzling one, I think every one who is somewhat familiar with the facts will admit. The delay in taking action with a view of doing something for these individuals is due to many factors difficult of solution. The problems are sociologic, moral, and medical, and many failures have resulted because sociologic problems have been dealt with medically or medical problems dealt with morally. Years ago, the addiction was almost universally regarded as a mere moral perversion—a bad habit entered into and continued because of moral degeneracy. The real factors contributing to the addiction are almost too many to enumerate, but we all know that alcoholism and morphinism are frequently associated with feeble-mindedness, pauperism, the insanities, degeneracy, the strain, worry or monotony of existence, the overworked and lack of proper educational development. At times, physical disorders are contributing factors.

An effort was made in the California Legislature of 1911 to do something for this unfortunate class. The Intemperance Enactment became a law under constitutional provisions without the Governor's approval. This law was

\* Essentials of a paper read before the meeting of Superintendents of State Hospitals and other State Officials at Napa State Hospital, September 20, 1916.

amended by the Legislature in 1915 so as to provide that, before a person shall be committed, satisfactory evidence shall be submitted to the trial judge showing that the person to be committed is not of bad repute or bad character apart from his or her habit for which the commitment is made; and that there is reasonable ground for believing that the person committed will be permanently benefited by treatment, etc. It is my experience that many of the cases of addiction sent to us are absolutely hopeless from the beginning. If they have not been addicted to the excessive use of liquor or drugs for years past, resulting in a certain degree of feeble-mindedness and weakened will-power, the cases are too often associated with criminal tendencies, degeneracy and prostitution. Of course, the superior judges are familiar with the law as amended in 1915 regarding the character of the cases to be committed and the hope of permanently benefiting them by treatment, but the incurables continue to come to us. Inasmuch as we usually obtain the true facts about their character after they come to the hospital, it is very likely that the superior judges have been misinformed regarding the character of the cases about to be committed. In the cases of prostitution among the women admitted, we find the occupation given as clerks, waitresses, stenographers, etc.

#### THE INCURABLE AND HIS CARE.

To cure a disease, the cause must be ascertained and removed. Where the cause is known and can not be removed, what have we to hope for? What can we expect in the way of cure or assistance from hospital treatment with the "rounders" who are constantly returned to us; those who, though they may make pledges, have no idea of carrying them out; those who, after having recovered from the immediate effects of drugs or liquors, declare, as has occurred in this hospital, that they will "get drunk" as soon as released; those who show deterioration, feeble-mindedness, degeneracy, criminal tendencies and desire for the red-light district. These are the cases that are returned to us again and again at an enormous expense to the state, and with little, if any, hope of reward for our labor with them. They are a menace to society, and the sooner they are confined in some colony or other suitable place and made to work for their maintenance, the better and safer will it be for the community. Dr. Reid, of San Francisco, has estimated the cost of commitment, transportation charges and cost of maintenance for one of these cases:

Cost of examination by Lunacy Commission.	\$10.00
Cost of transportation to State Hospital (average estimated by former deputy sheriff of San Francisco).....	15.00
Maintenance at \$15.00 per month for four months (estimated average length of detention) .....	60.00
Total.....	\$85.00

This is aside from the cost to the state in the work of the medical staffs of the hospitals, and when we consider that these cases cause as much

or more trouble than the insane, it means a heavy tax upon the physician's time. It is my experience that if a case, say of alcoholism, is committed a second time, he will sooner or later return a third, fourth, or more times. When a case has been committed to a state hospital once, has received careful treatment and remains for a reasonable length of time, say four months, I do not see what one can hope for in the way of benefiting that individual by a second, third, or fourth commitment. In such cases there is something fundamentally wrong with the individual, and, in most cases, it is incurable. I think that few cases deserve second consideration.

One must finish with the chronic and hopeless alcoholic or drug addict promptly and conclusively. It is important for a case of this kind to learn that at a certain point society will have had enough of him. Fathers and mothers must break with alcoholic children; wives and husbands must be freed from alcoholic mates; charitable institutions must be rid of alcoholic derelicts; society, itself, must be rid of this waste material after it has ascertained that the cases are hopeless, and have provided comfortable sequestration for them with employment. It seems to me that this great problem can be solved most readily by providing, as some states have done, a farm colony with diversified industries where they can be made to work for their maintenance under proper supervision. From such a colony the more favorable cases could be paroled from time to time, provided arrangements were made for a rigid after-care supervision.

#### THE ALCOHOLIC AND DRUG ADDICT WHO CAN BE SAVED.

Now, let us turn to the vast army of people who are worth while, but who, nevertheless, have, through mistakes common to our society, become victims to the habit. To be a subject worthy of our attention and careful treatment, he should conform to the following:

1. He must be an occasional or accidental drunkard, not an habitual drunkard for years past.
2. He must be a man who realizes his abnormal mental state while drinking, and wants to reform.
3. He must be a person who assumes without subterfuge or hesitancy full responsibility for his intemperate acts.
4. As a rule, he must have achieved something up to the point where he has become addicted to the excessive use of liquor or drugs.
5. He must realize that he can only build up a strong will-power by daily self-denial, never by giving away to every impulse that may come to him.
6. He must co-operate with his physician and be appreciative of the efforts made in his behalf.
7. He must decide for once and all times to absolutely refuse to take a drop of liquor or a "shot" of morphine; if he does, as a rule, he is doomed.

It has been estimated by competent observers that about twenty to twenty-five per cent. of alcoholics of all classes, and a larger percentage of

drug cases, can be reformed. When a case of this kind is committed for treatment, what shall we do for him?

#### TREATMENT.

The recognized lines of treatment for such cases are essentially three:

1. The gradual withdrawal method.
2. The hyoscin method.
3. The Towns-Lambert method.

*The gradual withdrawal method.* If we were to adopt as our standard of treatment that method which has the greatest following, we would unhesitatingly accept this method, particularly for the drug cases, for I find that most of the private institutions of the country adhere to this system. It is true that I have seen some cases of drug addiction suffer very little by this method, but, as a rule, they were cases which had been without the drug for some days previous to admission to the hospital, or had been using it but a short time and in small doses. But the average case of chronic drug addiction who has been using from 5 to 20 grains of morphine, or other drugs proportionately, daily will suffer immensely by the gradual withdrawal method, provided his mind is sufficiently clear to recognize his symptoms. Likewise, the alcoholic rarely requires any liquor, when the treatment soon to be described is instituted, unless he is greatly debilitated or is on the verge of delirium tremens. After personally comparing this method, which is slow and attended with such agony, particularly in the drug cases, with the Towns-Lambert treatment, I have entirely discarded it.

*The hyoscin treatment.* This method is little used. It has few adherents. Its disciple on the Pacific Coast is Dr. Bering of San Francisco. I am probably incompetent to judge of its merits from lack of experience with it. In 1902, Dr. Lott, of Cameron, Texas, published an article in the "Therapeutic Gazette," in which he advocated the hyoscin-hydrobromate treatment. It received some consideration at the time from the profession from the fact that it was endorsed by Dr. Hobart A. Hare of Philadelphia, and it is still recommended by him in the last edition of his therapeutics. It possesses, to my mind, no advantage over the Lambert treatment, and many disadvantages. The method is essentially as follows: There are three periods:

1. One week of elimination by diaphoretics, diuretics and cathartics. During this time the subject is given the drug with an attempt at reducing the amount.
2. The patient is rendered immune to pain by becoming mentally unbalanced from a dose of hyoscin; then withdraw morphine and all drugs completely; keep the patient in this condition for nearly two days. Dr. Bering says: "Secure the mild physiological action of hyoscin, indicated by redness of the face, dryness of the throat, dilatation of the pupils, and mild hallucinations." Again he says: "During this second period the patient is restless; tries to get out of bed and move about; talks at random; has many delusions and illusions."

With cocaine patients he says: "It is at times necessary to restrain them"; and again to quote, "It is important that a competent nurse attend the patient constantly during the administration of hyoscin."

3. The period of convalescence. This depends upon the patient's recuperative powers, and will extend over a period of three to five weeks, thus requiring a total of from six to eight weeks in a sanitarium.

#### THE TOWNS-LAMBERT TREATMENT.

*History.* This treatment should preferably be called Towns' and not Lambert, though Mr. Towns is not an M. D.; but the so-called specific was obtained from him and given to the medical profession through Dr. Alexander Lambert in an article appearing in the journal of the "A. M. A.," Sept. 25, 1909. Some narrow-minded physicians opposed the treatment because Mr. Towns is not a physician. Such should remember that cinchona was given to the world by a layman; hydrotherapy by an ignorant peasant; "how to cut for stone," by a friar; "how to treat gout," from a soldier; "how to keep off scurvy," from a sailor; "how to sound the eustachian-tube," from a postmaster; "how to catch the itch insect," from an old market woman; we borrowed acupuncture from a Japanese heathen, and the use of lobelia from the American savage. If the treatment is undeniably successful, its parentage is of no consequence whatsoever. Mr. Towns probably knows more about drug addiction, its history, prevalence, and treatment than any other living being. He has been the spokesman in state and federal legislation upon this subject, and has traveled extensively in the Orient and Europe, studying the whole question. He was recognized by Taft when he was President, who sent him cases for treatment under the government officials' supervision, and he represented the National Government at the first opium international congress held at Shanghai, March, 1909. He opened three hospitals in China—one at Peking, one at Tientsin and one at Shanghai; and during his residence there of eleven months treated four thousand Chinese without a fatality and with marked success in every way. Hospitals carrying out this line of treatment have been established in many of the larger municipalities of the east, and at his own hospital in New York City during the year 1915 there were treated nine hundred patients, three hundred and twenty-six of whom were drug addicts. Mr. Towns' method has been accepted by some of the leading men of our profession. Dr. Lambert, visiting physician at Bellevue Hospital and Professor of Clinical Medicine at Cornell, has been mentioned. Dr. Richard C. Cabot of Boston, whose work on "Diagnosis" we all know about, has investigated the method most carefully, and has, without the slightest reservation, put the seal of his unqualified approval upon the treatment of such cases by the method. Dozens of others of national reputation could be mentioned.

#### ITS SCOPE.

This treatment is not offered as a cure for mor-



phine or as a cure for delirium tremens or chronic alcoholism. It will, however, obliterate the terrible craving that these patients suffer when, unaided, they endeavor to get off their drugs or are made to go through the slow withdrawal without some medication to ease them. Compared with the old methods of slow withdrawal, it is to my mind markedly superior. Deprivation of a drug is in no way equivalent to elimination of that drug from the body. Deprivation causes suffering; elimination relieves it. But neither this combination of drugs nor any other combination known to men can prevent persons, after they are free from their addiction—be it alcohol or morphine—from going out and re-poisoning themselves. It is my firm belief that, just so long as an addict lives and just so sure as he lives, he can never again take a drink of alcohol or a shot of morphine whatsoever without the danger of going again to excess. After patients have been freed from their drug and from the desire for it, they are by no means cured of their former habits of life and environment, and, more especially, of their former habits of thought.

THE METHOD—THE MORPHINIST OR OTHER DRUG ADDICT (EXCEPT COCAINIST).

A patient addicted to morphine is given five compound cathartic pills and five grains of blue mass, and six hours later, if these have not acted, they are followed by a saline; after three or four abundant movements of the bowels from these cathartics, the patient is given, in his habitual way, by mouth or by hypodermic, in three divided doses at half-hour intervals, two-thirds or three-fourths of the total daily twenty-four-hour dose of morphine or opium to which he has been accustomed. The physician should observe carefully after the second dose has been given, as the amount then equals either four-ninths or one-half the total twenty-four-hour dose. A few patients can not comfortably take more than this amount. Six drops of the belladonna mixture, which consists of—

- R Tincturae belladonnae..... $\bar{3}$ ii  
(Use 15% tincture)  
Fluidextracti xanthoxyli  
Fluidextracti hyoscyami, aa..... $\bar{3}$ i

are given at the same time as the morphine. This belladonna mixture in doses of six drops (and by drops I do not mean minims: I mean drops dropped from an ordinary medicine-dropper, which is about half a minim dose) is given every hour for six hours. At the end of six hours the dosage is increased two drops. The belladonna mixture is continued every hour of the day and every hour of the night continuously throughout the treatment, increasing two drops every six hours until sixteen drops are taken, when it is continued at this dosage; it is diminished or discontinued at any time if the patient shows belladonna symptoms such as dilated pupils, dry throat or redness of the skin, or the peculiar and incisive and insistent voice, and insistence on one or two ideas. It is begun again at reduced dosage after these symptoms have subsided. If the patient has an unusual sensitiveness to belladonna, it will usually show

itself in the first six or eight hours, and the hourly dosage can be cut down to from two to four drops and raised by one drop every six hours. If, on the other hand, even sixteen drops, persisted in for twelve consecutive hours, do not give dryness of the throat, the dosage should be raised to eighteen or twenty every hour until the dryness occurs, and then the amount reduced.

At the tenth hour after the initial dose of morphine is given, the patient is again given five compound cathartic pills and five grains of blue mass. These should act in six or eight hours after they have been taken. If they do not act at this time, some vigorous saline is given, and when they have acted thoroughly, the second dose of morphine is given, which is usually about the eighteenth hour. This should be one-half the original dose; that is, one-third or three-eighths of the original twenty-four-hour daily dose. The belladonna mixture is still continued, and ten hours after the second dose of morphine has been given—that is, about the twenty-eighth hour—five compound cathartic pills are again given and five grains of blue mass; these again, if necessary, followed by a saline seven or eight hours later. After these have thoroughly acted at about the thirty-sixth hour, the third dose of morphine is given, which is one-sixth or three-sixteenths of the original dose. This is usually the last dose of morphine that is necessary. Again, ten hours after the third dose of morphine—that is, the forty-sixth hour, the five compound cathartic pills and five grains of blue mass are again given, followed seven or eight hours afterwards by a saline, and one expects at this time to see the bilious green stool appear. When this appears, after the bowels have moved thoroughly, about eighteen hours after the third dose of morphine, about the fifty-sixth hour of treatment, two ounces of castor oil are given to clear out thoroughly the intestinal tract. Sometimes it is necessary to continue the belladonna mixture over one or two more cathartic periods before giving the oil. About the thirtieth hour of treatment these patients should be stimulated with strychnine or digitalis, or both, every four to six hours.

MORPHINIST PLUS ALCOHOLIC.

In those cases addicted to both morphine and alcohol we treat as we do a morphine case and cut off all the alcohol immediately. If, however, on sudden withdrawal of the alcohol there is a danger of the development of delirium tremens, we may have to give some liquor at the beginning. If these cases should have an active gastritis, which complicates their ability to retain their medication or food, such condition will have to be remedied before the treatment can be instituted.

COCAINIST PLUS MORPHINIST.

If more morphine is used than cocaine, we usually treat it as that of a morphine addict, and vice versa. These are often very difficult cases to handle, and frequently become delirious. We give no cocaine whatever after treatment has begun.

COCAINIST.

This addict is treated like an alcoholic, except

that no cocaine is given at any time, and strychnine or some other stimulant must be given as a rule from the beginning of the treatment.

#### TOBACCOIST.

These cases are usually allowed to taper off during the first twenty-four hours, or, if possible, cut off abruptly, and treated exactly as you would an alcoholic.

#### ALCOHOLIC.

In treating an alcoholic, the belladonna mixture and the five compound cathartic pills and five grains of blue mass are given simultaneously at the first dose. The belladonna mixture is continued every hour of the day and every hour of the night, the same as with the morphine patients, and twelve hours after the initial dose, patients are again given from three to five compound cathartic pills, and at the twenty-fourth hour after the salines if necessary, and again at the thirty-sixth hour. After these last cathartics the bilious stools will appear, and by the forty-fourth or forty-fifth hour the castor oil is given. Sometimes it is necessary to carry on the treatment over another period, and the compound cathartic pills and blue mass are again given at the forty-eighth hour, which would bring the end of the treatment about the sixtieth hour. It may even be necessary to carry on the treatment one or two periods longer.

Elderly or very nervous patients who have been on a prolonged debauch are tapered off with two ounces of whisky for four or five doses through the first twenty-four hours. If these patients are excessively nervous, it is necessary also to see that they sleep, and the mixture of chloral hydrate, twenty grains, morphine one-eighth grain, tincture of hyoscyamus one-half dram, tincture of ginger ten minims, tincture of capsicum five minims, and water one-half ounce, is the best hypnotic for them. These patients should also have cardiac stimulants, such as strychnine and digitalis, after the first twenty-four hours, or sooner if they are weak.

#### COMPLICATIONS.

(1) In certain cases nervousness and discomfort may arise before the treatment is finished. Such condition can usually be very readily controlled by giving hypodermically three to five grain doses of codeine, and repeat if necessary. If the case can not tolerate codeine (break out into an urticarial rash or fine red punctate rash, or having swelling or burning of the skin) relief can be obtained by dionine, which seems about twice as strong as codeine. It is given, therefore, in doses of about two or three grains or less.

(2) Pains in the joints and aching in the bones and muscles after treatment: A small percentage of cases will present these complications. This condition is usually relieved in twenty-four to forty-eight hours after codeine or dionine. Don't continue either more than forty-eight hours after treatment is ended. If the trouble continues, resort should be had to hydrotherapy and massage.

(3) Insomnia: This is occasionally troublesome after treatment is ended and usually responds to small doses of bromides and sodium-veronal. Prob-

ably the best hypnotic is muscular fatigue, and these patients should begin to exercise regularly and be built up physically as soon as their condition permits; hot blanket packs assist materially.

#### SUGGESTIONS.

(1) Quantity of cathartics: Attention is called to the fact that a very small person might not require more than three C. C. pills and three grains of blue mass, while on the other hand a very large person might require more brisk catharsis.

(2) Some of the cases are fairly well off their drugs or their debauch before reaching the hospital. In such cases it is rarely necessary to give any morphine or other drugs during the treatment.

(3) The C. C. pills should be fresh to secure good results.

(4) Many alcoholic or drug addicts suffer from chronic tobacco poisoning, which in alcoholics is the cause of periodic inebriety, or, in a drug case, the cause of its continued use. This is especially true of the excessive cigarette smoker and many others who inhale their cigar or pipe smoke. These patients smoke to excess, and becoming nervous, increase their smoking that their nerves may become quieted. Finally they become so nervous through their tobacco that they must take some narcotic to quiet them, and they turn to alcohol or drugs. The vicious circle can be broken only by cutting off the tobacco, and unless the tobacco is cut off on their release from the institution, they will stop neither alcohol nor tobacco.

#### WITH THE TOWNS-LAMBERT TREATMENT WE FIND:

1. A patient who, excepting in rare instances, can co-operate with the nurse throughout the course.
2. A patient who can tell you of his feelings and understands fully the method.
3. A patient who does not require constant supervision. One nurse can attend to many cases.
4. A patient who presents a clear mentality throughout.
5. A treatment lasting only from two to three days.
6. A treatment appreciated by the co-operating patients and generally commented upon, as they know they have passed through the ordeal with the minimum degree of discomfort.

#### RESULTS.

No claim is made that the final results of this method of treatment are any better than those obtained by any other method; the essential thing is to place the cases upon their feet as soon as possible and from a humane standpoint with the least discomfort to the individual.

No treatment with which I am familiar will do this so easily and so readily as the one described above.

I desire here to acknowledge my indebtedness to Dr. A. W. Hoisholt, Superintendent of the Napa State Hospital, for the privilege of administering this line of treatment at this institution.

### THE PATENT MEDICINE EVIL.\*

By PHILIP KING BROWN, M. D., San Francisco.

There are always four parties to the patent medicine evil—the manufacturer, the newspaper, the distributor, and the victim, and also too often the public hospital and the undertaker. It is not my purpose to point out the responsibility of those unscrupulous beings who prey upon the anxiety and depression of the sick by making and advertising substances which they claim will cure all of the common and most of the serious ailments of mankind. So bald and raw did their evil efforts become that the Federal Government finally clipped their wings by the passage of a pure-food law, causing some of them to suspend operations and forcing all of them to curtail their claims to a considerable degree. A long distance more must legislation go, before the skill of these nefarious individuals in getting their preposterous wares before the public can be circumvented. Ministers of the gospel, broken down nurses and doctors and socially prominent, but impecunious individuals, are the tools of this class, and schools in salesmanship are maintained by some of the more notorious of these vultures, all in an effort to elude the law and reach the public in some insidious way.

Newspapers have denied their responsibility of being censors of the morals and ethics of advertisers. They claim that they are not in the business for their health, and it is certain that they are not in it for the public's either. So powerful are the advertisers of patent medicines who must keep their wares before the public, that they have been able not only to buy the press with few exceptions, but to line up the press against any local legislation inimical to their interests. A free country and a free press! Yes, if one has money enough the country is fairly free and the press can be made free enough to say anything, even that black is white.

It is to the third party to the patent medicine evil—the distributor—that I wish to direct special attention. Most medicines, patent, proprietary and otherwise, pass through the hands of wholesale and retail druggists to the laity, but we cannot escape the unfortunate fact that doctors themselves have only too often been guilty of helping to disseminate some patent medicines. In so far as they are responsible they deserve the severest censure and any punishment that their fellows could justly inflict upon them. It is an evidence on their part of ignorance, indifference, and slovenly morals, for they have promised on being graduated into the medical profession to be guided by full investigation and knowledge of fact in all they do.

The wholesale druggist has escaped the public condemnation which he should have for his part in the distribution of patent medicines. He need not handle them at all; he could even handle them in single units; but not so; he is directed by the manufacturer to dispose of them on request from retailers in unbroken packages. And so there is dumped on the retailer, who wishes to hold all the

trade he can, a dozen or two bottles or boxes of a patent medicine, when all he wanted to fill some order or prescription was a few ounces. With a whole case of the drug to dispose of the retailer only too often places it in a showy place to catch the eye of the solicitous searcher for health. So bad has this condition become that the manufacturer has been able to unload his wares all over the country, forcing even some of the highest class druggists to handle his nefarious doses. The further down in the scale of druggists one goes the worse is the evil, until near the bottom one finds the stores filled with patent medicines, with a shelf or two over a sink where a few established remedies are mixed and dispensed.

The metamorphosis of fully half of the druggists under the impact of modern greed is the most amazing feature of the patent medicine evil. Time was when the skilled chemist and compounder of doctors' prescriptions was their faithful ally in the healing art. But that time has passed and now far the most of the druggists are equally bound to another master whom they endeavor to serve without injury to their ancient prestige. That they continue to serve two masters whose interests are diametrically opposed is a triumph of skill and dual personality. That they continue to serve them without protest from any one is proof of the ignorance of the many and the cynical tolerance of the responsible few. Obviously they have so far clouded the real situation that to their original ally they say: "We are forced to carry the goods of the patent medicine man because the doctors order them and the public wants them." Nor is this all, nor the worst. Eager for a share of the swag they have gone a step farther, and capitalizing the public's eternal susceptibility to the largest pretension in the gaudiest form, they put up their own remedies for ailments, simple and complex, prescribe willingly over the counter, and adorn their show-cases and windows with large attractive bottles of cure-alls, greater in bulk and lesser in price than the contents of the doctor's prescriptions, and far more alluring in promise.

How insidious must be the suggestion of such a drug store to the sick and waiting patient who takes in a prescription to be compounded! While he waits, magic philtres play upon his hyper-sensitive sensibilities. Rows and rows of pleasing panaceas promise immediate alleviation of every known ill, from baldness to sudden death. And venturing among the luxuriant verbiage of the ads and testimonials he recognizes the very symptoms as his own. When finally he takes his expensive bottle (for which he has waited an hour), he sallies forth with a vivid mental picture of the much larger bottle at half the price, for the very malady the doctor said he had. The spell has come upon him and henceforth he is the marked-down victim. Suppose he is not better in a few days—the much larger bottle at half the price will suddenly flash into consciousness and in the suggestible state of most sick men he will try the remedy he has seen so temptingly advertised.

He has paid the high cost of looking.

\* Read at the Southwestern Conference, Albuquerque, N. M., October 12, 1916.



And what a perfectly logical reaction it is. A master psychologist is your vender of nostrums, knowing well his American public—an uncritical public fed on the pseudo-science of the Sunday supplement and the pseudo-psychology of New Thought, Christian Science and Home of Truth, and finding in the pat phrase an excellent substitute for thought. Such a public will fall for the striking label and the flamboyant ad., as it falls for the catchy slogan in politics, or the pocket wisdom of the phrasemongers, without recourse to the painful process of cerebration. Thus the appeal of the glamorous drug store is potent and the doping of symptoms begins—and with it the pathos of money wasted that can ill be spared, of precious time lost that can be spared still less, of habits formed that are beyond all cure. (Do you observe in passing, the enterprising instigator of habits still preserving his ancient prestige?)

The extent and variety of the symptom-dosing may be judged from a brief analysis of the commonest types of nostrums. Roughly we may divide them into three kinds:

(1) Those that cheer and yet inebriate, the contraband cocktails, so to speak, the festive Perunas, the joyous Swamp-Roots and the omnipresent Creme de Pinkhams;

(2) Those that soothe while they depress; the orangenes, bromo-seltzers, et al.;

(3) Those that fill you with false hope and harmless dope at \$1.00 per 10 cents' worth. Of such as this is the much-exploited sanatonogen, and the multitude of mitigated waters.

It is the subconscious sprees of the first class that swell the ranks of the liquor-users with thousands upon thousands of innocent toppers,—women, professed white-ribboners and rebellious natives of prohibition districts. Dr. Ashbel Grinnell of New York, who has made a statistical study of patent medicines, estimates that more alcohol is consumed in patent medicines than in all the spirituous liquors sold by licensed liquor venders. The sudden increase of sales in "bitters," "sarsaparillas," "perunas" and "celery compounds" which everywhere follows a prohibition victory, tells its own story. Maine and Kansas and Oklahoma may have their accustomed jag while the druggist flourishes like a green bay tree.

To the headache powders, catarrh cures and acetanilide compounds generally, we owe a frightful increase in the number of neurotics, drug habitués and defective, if not criminal, classes, and they are taken in all innocence to stimulate heart action, produce better blood, and soothe the nerves (as the ads. so persuasively claim). The effect is quite the reverse,—they depress the heart, they contribute to anemia, they temporarily deaden, only to induce greater excitability, or a more poignant pain. In fact the only thing they do stimulate is a craving for more, and this craving persistently fostered by deceptive labels, and catered to by complacent nostrum venders, leads ultimately to the breakdown of physical, mental and moral integrity.

To the third class belong those much megaphoned elixirs of life that periodically set the

world agog, run their little course of gulling and beguiling the world's fools and finally lapse into the limbo of things outplayed. These are the "liquozones" and "sanatogens"—innocuous frauds that promise the tired business man, and the nervous wreck, life, liberty and the pursuit of happiness on a capital stock of three-grains-of-corn.

But of all the frauds perpetrated by the patent medicine exploiters none is so tragic and heartless as the consumption-cure fakes, and none are more commonly indulged in, or more devoutly believed. To prescribe a drug where no drug will cure, to break down the resistive power, to encourage the relaxation of those rigorous rules of living, through which only can these sufferers be saved,—herein lies the cruelty and viciousness of those "cures." All who work with the tuberculous know the sadness of those last stage cases who have sacrificed the potentialities of cure to the deceits of "ozomulsions," "tuberculozine," and "tubercleclide."

Just how strong is the habit of symptom drugging may be learned in a sanatorium. In my experience at Arequipa (a sanatorium at Manor, Cal., for early tuberculosis among wage-earning women) the daily appeal for drugs for every trivial ailment, every slightest irregularity of function, is a revelation of long-established habits of self-diagnosis and self-prescription. Is there one wakeful night? The demand is for a sleeping powder. A day of nervous instability? The plea is for bromide. A headache from whatever source, calls for antikamnia, while the nightly procession of kimonos calling for "salts" is a thing to stand the hair on end. In an effort to break this habit we have made it a rule never to grant a patient what she prescribes for herself even though she hits on the right remedy, and to charge patients for drugs for any condition other than the tuberculosis.

An episode which illustrates the hold of the skilfully advertised patent medicine on the credulous and misguided laity may not be amiss:

A prominent lawyer once asked me why the medical profession was so narrow on the subject of patent medicine. He stated as an illustration that the local manager of the Fulton Compound Remedy for Bright's Disease and Diabetes, a classmate of his at a leading university, had shown him that day the extraordinary collection of testimonials from people cured of these diseases. I might have argued with him till doomsday that the facts would not bear out the testimonials, and failed to convince him, so I chose to make it worth his while to produce the proof, if he could, by offering him a large sum—\$500.00—if he could produce a single case of chronic Bright's disease where three reputable physicians had concurred in the diagnosis and where Fulton's Compound had later effected a cure. He returned jubilant the following day with the story of a certain Judge B., well known in San Francisco, who was told by a prominent surgeon and later by his able assistant, that his ailment causing some heart disturbance was in reality chronic Bright's disease. Upon leaving the care of these two physicians the patient applied for a pension and was granted it after examination by a

board of army physicians on the diagnosis of chronic Bright's disease. The proof of the disease I could not dispute. After receiving the pension, friends persuaded the judge to try Fulton's Compound, which he did, and my lawyer friend reported him cured and produced a copy of his testimonial. I asked for a chance to examine the patient's urine, adding that I should prove by this very case the fraud which I knew had been perpetrated on the judge. I was never permitted to examine the urine and later learned that tests of the urine made by the Fulton Compound's own chemist showed half of one per cent. albumen, and the accompanying evidences of the chronic disease. The patient from over-effort during his kidney disease had heart symptoms; a rest and diet under his physicians' care relieved them and he was again a chronic nephritis case without subjective symptoms. Fulton's Compound may have done no harm, it certainly did not cure, and I doubt if it even did any good. It is fair to add that the manager appreciated the fraud he had innocently been perpetrating on the public and resigned his job, but the proprietors of this abominable atrocity still advertise their reputed cures and grow fat on their wicked gains.

But perhaps later you say, what of the druggist's defense that "the doctors prescribe patent medicines." A little investigating disposes of this. Letters to druggists in several parts of San Francisco representing the extremes of social conditions brought out these facts. Among the first-class drug stores patronized by the well-to-do, only one to three per cent. of the doctors' prescriptions called for patent medicines, while in several of the stores in outlying or poorer districts the number of prescriptions calling for these remedies in whole or part reached eight to twelve per cent. It is evident from this that we cannot escape some part of the responsibility of this distribution, though it is interesting to observe that the universal testimony of the best druggists was strongly against handling patent medicines and their use by doctors and that the demand for them from the laity is steadily declining.

Why then you may ask, try to regulate the druggist who is but one cog in the machinery of exploitation? Why not educate the public? Expose the frauds? Jack up the manufacturers? Insist on enforcement of the pure food and drugs act?

These methods have one and all been tried, and with partial success. Each has its limitations or its clogging technicalities and the sale of nostrums goes on. The processes of public education are slow and with our fundamentally faulty school system, far from sure. Curricula loaded with fads and frills but innocent of any training of the reasoning faculty, or the powers of observation and deduction, are largely responsible for the crimes of credulity which undermine the public health. Publicity campaigns are more immediately successful, but thrive chiefly as a nine-day sensation. In 1905 Collier's Weekly printed its exposé of the great American fraud with sensational effect and a net

result of fifty per cent. reduction in the sale of patent medicines.

The A. M. A., in an effort to prolong this effect, issued a series of reprints and added a few choice revelations of its own which were disseminated broadcast over the country. The Post Office Department, through its provisions against fraud, has held up many vicious concoctions en route to the gullible. The Federal Food and Drugs Act has exercised what powers it has but these have strange unaccountable limitations and through chinks in the law many fakes contrive to escape. For instance, it is illegal to lie on the label but quite permissible to lie on a circular, a newspaper ad., or a show window. It is obligatory to declare on the trade package the composition and origin of a patent medicine, but these same important items may be omitted from a show card. The deadly compound which records its percentage of alcohol, morphine, acetanilide in very small type on the label may describe itself largely and engagingly as "mountain air in the veins," "wings of the morning" or "the quintessence of youth, beauty and the joy of living," in a single pill. The amount of alcohol, morphine, opium, cocaine, heroin, eucain, chloroform, cannabis indica, chloral hydrate, and acetanilide, must be declared, but nothing need be said to indicate the presence of such dangerous drugs as prussic acid, aconite, arsenic and strychnine. Furthermore the Federal Law controls only the drugs which pass from state to state in interstate commerce, and has not one iota of authority over the drugs sold in the same state where they are manufactured. And when in the course of a Federal investigation of some suspected fraud, important discoveries are made, these findings are buried in official archives and never reach the public, the while prosecuting procedure drags and drags.

Such being the limitations of the law and the slow, cumbersome movement of its machinery, we come back to the druggist. How shall we make it possible for him to turn down the patent medicines, make a living and honestly maintain his ancient prestige?

I am convinced from a discussion of the whole subject with the high class druggists, that they hate the patent medicine situation as badly as do the doctors and that they would unite with the profession in putting it out of business, at least as far as they could through their channels. Would it not be possible, therefore, to establish in each community a list of druggists who were willing to keep no patent medicines for sale and who would refuse to compound any prescriptions calling for them? Let the medical society of each community publish through its notices of meetings a list of such drug stores to be known as the "white list" and let the secretary of the society distribute a few of these lists with each notice of meeting. In this way when patients ask "to what drug store shall I take this prescription?" it would be possible to do a very reasonable bit of advertising of the first-class places, who in return for this advertising protect their patrons and help to establish again the

proper relation between doctor and druggist. San Francisco advertises in this way the dairies that produce certified milk and the dairies that have passed an inspection as to hygienic conditions. It may be cutting down the work of doctors to thus point out how to rid the community of diseases due to bad milk and it may cut down the work of doctors to supply patients with good drugs, but I am sure this is the kind of lessening of our work that will not be objected to by any physician, and it would make it possible and profitable for the druggist to regain his old status as the physician's faithful ally in the healing art.

### THE ABORTION EVIL IN A SMALL TOWN.

By WM. B. SMITH, M. D., Randsburg.

Probably the abortion evil is no greater in the small town in proportion to the number of inhabitants, than in the city, but it is certainly more conspicuous, and knowledge of the usual methods used to produce abortion seems to be almost universal among the women of this small town. That this should be so is, I believe, due to three factors: first, while an old quiet mining town, it is a saloon town of rather low moral standards; second, the people here are all pretty generally acquainted and it is easy for one woman to get the help of another wise in the ways of the world; and third, but not least, some previous practitioner here has been unrestrained by morals, law, or training from gathering in the dollars from this source, as is shown conclusively by the attitude of the half dozen women who have come to my office in the three months of my residence here with the idea of securing relief from an unwelcome pregnancy.

The "sop to conscience" used by one predecessor is common comment among the women here and was passed on to me by my wife. When approached by a woman seeking relief he is reported to have answered them, "I am not allowed to do abortions by the rules of my profession, but if you start it by using a stiff rubber catheter I will finish it for you and see that no harm comes to you." What a sense of security and safety must have followed him about, a sort of visible halo, among the women of the community! In running to earth the causes of the unexpected peritonitis and death of my first Mexican patient here, following cervical repair and shortening of the round ligaments, I learned that she had had seven curettements in the last three years and had successfully aborted herself some four weeks before coming to me for the repair work. This woman spoke no English and my only means of talking to her was through an interpreter. The indications for the repair work were definite, but only after her death was I able to learn the above details that would have warned me to delay operation for some weeks or months until all danger of spreading a latent endometritis was passed. No wonder this unlettered woman was able to interfere with herself successfully, she had been thoroughly taught and was entirely ignorant of the dangers involved. One could have some measure of sympathy for a doctor who thought

this woman's seven children living were sufficient in a family where the father earns \$3.50 per day, if he had quietly instructed her how to avoid further pregnancy. But what can be said for one who repeatedly curetted her after pregnancy, charging this same three-fifty-a-day man \$25.00 each time his services were required!

How perfect has been the instruction in the community is again illustrated by a recent incomplete abortion which I had to finish. A young 200-pound matron of the community missed her menses, went to the next regular time, then decided she would relieve herself in the usual way. Some fore-handed neighbor woman supplied her with a stiff rubber catheter. Clad in a dirty kimono and old shoes, oiling the bent catheter, inserting a finger as guide, she claims that "one poke" was all she had to make with the instrument. She became frightened at the sudden profuse hemorrhage that followed, and sent a hurry call to me for help. Examination showed an old lacerated cervix which now admitted one finger easily and which bled so profusely at the least disturbance that a cervical and vaginal pack was needed to check it. A few pains during the night and one good expulsive pain the next morning delivered packing, foetus, and membranes, and I was again called to check the hemorrhage. The demeanor of this case throughout elicited not one sign of any feeling of wrong doing. She did not want a baby, she knew how to get rid of it, and what more simple than to rid herself of it! I wish some kind friend would tell me what to do with people like that!

So prevalent is this sort of knowledge in this town that I have been hesitating over a therapeutic abortion which I feel should be done for another patient of mine. The indications in this case are plain, simple, and imperative, yet I continue to hesitate for fear of being ranked in the popular mind with some of those who have gone before me. This woman has a baby under two years of age, and has now again missed her second menstrual epoch. She is still thirty pounds under weight, is anemic, and shows a thickened left pleura. With the birth of the first baby she was in bed for two months, first with thrombo-phlebitis of the left leg (milk leg she calls it), then with pleurisy with effusion, from which she finally recovered without tapping. She was cautioned at that time about becoming pregnant again, but she has been depending on her husband for preventive measures, and, as usual, this failed of efficiency. Now I shall have to relieve her sooner or later, but I sincerely wish she were financially able and willing to go to the city to have it done.

There are rays of sunshine through the darkness even of this benighted village. I have a woman now on my obstetric list five months along, and at least resigned to the inevitable, if not happy in the prospect of adding another to her family of one. After missing her second period she called upon my colleague in the town with a story of not being able to carry the child to term, and asked for relief. The doctor laughed at her, and then I was honored by a call with the same



story and the same request. I eased her off a little more gently by putting her to bed, making a thorough examination, and telling her I would watch her a few days and interfere if necessary. It did not become necessary, the authority of the husband was enlisted, and finally she was enrolled on my obstetric list.

How many chances the other doctor has had to turn down twenty-five dollars (which seems to have been the prevailing price heretofore) I do not know, but in my second month here, out of a population of six to eight hundred, I turned away three women who seemed to expect me to come promptly to their relief. One of these went in to Los Angeles where, friends tell me, she was "taken care of." The other two I still see about town, and am watching with considerable interest. The three doctors in this district now are all young, are trying to hold fast to essential professional ideals, and do not place dollars above morals, so that I hope to see a gradual readjustment of standards in this small town in time. This essential readjustment is much easier here than in the city, for what one woman learns every woman here knows sooner or later. If there are other small towns in the state where the same conditions prevail, the effective remedy is to first change doctors, and then have a few professional ideals impressed on the women of the community.

#### "THE USE OF THE ASPIRATOR FOR REMOVING PUS, BLOOD, EXUDATE, TRANSUDATE, AND BOWEL CONTENTS DURING SURGICAL OPERATIONS."

By EDMUND BUTLER, M. D., San Francisco, Cal.

The removal of blood and mucus from the pharynx during operations in the nose and throat by means of some suction apparatus is an accepted procedure. The use of the same apparatus by the general surgeon has been neglected. This method of removing blood, pus, exudate, transudate, cyst contents, and bowel contents, is very practical and efficient.

Any of the many methods may be used. (This article has no reference to the Potain aspirator.) The apparatus first introduced into surgery by Dr. Edward Cecil Sewall of San Francisco, California, is easy of construction, not costly and is reliable. Apparatus consists of an ordinary glass connecting tube, bore the size of a lead pencil, tipped with three-fourths of an inch of fairly stiff rubber tubing; the glass may be bent to any angle or curve. Six feet or more of pliable but not easily compressible rubber tubing connects this tube to a five-gallon glass jar. The jar is connected to an ordinary water pump aspirator attached to water faucet. See illustration. This gives a partial vacuum of sufficient, even aspirating force to carry away fluids encountered while operating. The tubing and jar are easily sterilized.

In abdominal surgery such conditions as abscesses, ascites, collections of blood, hydrops of the gall bladder, hydronephrosis, mesenteric cysts, and cystic ovaries, may be more easily dealt with by the judi-

cious use of the aspirator. A trocar may be quickly substituted for the glass tip if desired.

The most spectacular as well as meritorious use of the aspirator is in the evacuation of abdominal abscesses, tubal, appendicular, diverticular, or perigastric, and transperitoneal removal of septic fluids. The abdominal wound and viscera are protected by gauze pads. The adhesions are slowly and carefully separated until the pus is released, the aspirator, manipulated by the assistant, nicely carries away the septic material. There is no saturation of the pads and unavoidable contamination of wound and viscera; pus-laden sponges are not handled; assistants are not soiled; the danger of losing sponges is obviated; the technic if carefully carried out is time-saving and life-saving.



THE SEWELL APPARATUS.

This photograph displays an ordinary rubber tube for a tip instead of one described.

The assistant manipulating the tip will have better success if he compresses the tubing intermittently and alters the position by rapidly elevating and depressing the tip; these movements prevent the exhaustion of the vacuum, particularly if the quantity of material to be removed is small.

Large ovarian cysts are rapidly reduced in size without the usual procedure that is necessary when the syphon trocar is used. The possibility of the transplantation of malignant cystadenoma cells is less liable to take place.

In injuries resulting from gunshot wounds or stab wounds of the abdomen, bowel contents, blood and exudate are a considerable interference to the repair of viscera and blood vessels. The blood, bile and partially digested food wells through or around gauze packs and obscures the field just at the time a suture is to be placed; any sponging is very apt to change the relations, but the slender aspirator tip readily removes the offending

fluid without obstructing the view. The same is true in the repair of perforated gastric, duodenal, and typhoid ulcers, and ruptured hollow viscera, particularly a perforated ulcer or a traumatic rupture, if located in the sessile portion of the duodenum.

The field for the use of the aspirator is not limited to the nose and throat, and the abdomen. Any operative procedure where the wound is deep and the bleeding free, is benefited, as operations upon malignant growths in the region of the orbit or superior maxilla, tumors of the tongue, and substernal goitre. In the surgery of the long bones, where the fewer the sponges and instruments used the less the likelihood of infection, the aspirator may be used to a very great advantage.

The aspirator is not heralded as a substitute for sponges, but it has a definite place in surgery, and every operating-room should possess one.

#### PRACTICAL X-RAY WORK FOR THE GENERAL PRACTITIONER.\*

By ALBERT SOILAND, M. D., Professor Roentgenology, College of Physicians and Surgeons, University Southern California.

As the number of men who are limiting their work to Roentgenology is so large, and with practically every hospital equipped with apparatus, there seems to-day to be little need for the general practitioner concerning himself with the trouble and expense of buying an outfit. For those, however, who are so situated as to be deprived of the services of a good Roentgen laboratory, and who are desirous of doing their own work, it is well to spend some time to learn the fundamentals and then ascertain just what to buy to suit their individual needs. There are other men, however, who live in communities where there are a number of excellent X-ray institutions and who could get such service both efficient and economical, yet spend a great deal of money for apparatus of their own just because Dr. So-and-So across the street has just installed the biggest X-ray machine west of New York. Here then we find a really expensive plant bought largely because the benevolent salesman assured the doctor that he would immediately become a master Roentgenologist and skin the fellow across the street a mile in taking X-ray pictures, and best of all, make a lot of easy money. The proud possessor of this modern plant now starts out to accomplish all that he expects to do, but soon realizes that all is not quite so simple as he contemplated. He sees that there is considerable to learn, that his pictures are not always like those in the catalogue, that the expense of running his outfit is not inconsiderable, and strangest of all, the expected easy money is not forthcoming. At this stage of his evolution, he discovers that he has spent so much time over his X-ray machine that his general practice is being neglected, and that if he intends to really learn the X-ray work he will have to practically give up a practice he has been years in accumulating. By this time his better judg-

ment reasserts itself and he relegates his X-ray plant to an assistant, and once again resumes his practice. This, gentlemen, is not an exaggerated picture. I know personally of a half dozen such instances in our own community. The point I would like to emphasize is that one cannot take a flyer in X-ray work just for appearance sake. It is serious and difficult work at best, and demands one's entire time and attention, if it is to be conducted along lines that are compatible with the march of medical progress. These remarks are not intended to discourage those who really desire to take up Roentgenology, for no specialty in medicine is developing faster, and there is a positive demand to-day for competent Roentgenologists.

Now as to what constitutes practical X-ray work. Assuming that all mechanical, electrical and technical points are understood, the work comes under two general heads, therapeutics and diagnosis. The former is by far the most complex, if not the most important, and we are all still in the kindergarten class of knowledge upon this subject. Briefly, the present proven field of X-ray therapeutics is (1) the localized dermatoses both benign and malignant, those that do not respond readily to other approved medical or surgical means, and (2) the as yet unproven field of deep therapy. This covers glandular disease, and all pre and post operative attempts upon the viscera. My own views upon the matter of X-ray therapeutics has recently been presented in other communications and will not be foisted upon you at this time.

That which will interest you more perhaps is the diagnostic end, and here again we have two divisions, the visualizing screen, examination and the photographic plate. The fluoroscopic screen has a large field of usefulness, but its constant use demands that it be surrounded with every protective means available. The very fact that we actually render visible to the eye, both physiological and pathological changes in the living subject renders this mode of examination so interesting that one is apt to overstep the time limit of safety during an observation. While the patient might easily escape any serious results, even from one or two prolonged examinations, the repeated saturation of the observer would soon lead to grave symptoms, which are all now too well known to the early workers in this science. Screen examinations, if made briefly and under modern protection are quite safe. The regions best studied by the screen are the chest, where early changes may be observed in the lungs, as well as heart and mediastinal conditions. Visualization of the stomach and intestines by means of opaque meals is also of great value, but beyond this it is best to rely on the photographic plate, as for instance bone lesions and fractures. The inspection of fractures by the screen is as a general rule unsatisfactory and bone changes can be studied with so much better satisfaction upon the plate. The same holds true for foreign bodies. There have been more X-ray burns follow the attempted re-

\* Read before Pacific Coast Roentgen Ray Society, San Francisco, Cal., December 9, 1916.

removal of a needle or bullet by means of the fluoroscopic screen than in any other form of X-ray work. It is so much easier and safer, also far more accurate, to localize the foreign body by means of plates taken in two or more angles. To make a long story short, use the photographic plate whenever possible and use the fluoroscopic screen only in those cases where the plates do not give the desired information.

So we go on with what we had in mind to write about, namely, the discovery of a new class of human beings, a class just like ourselves, with the same capacity to be happy and miserable, but a class that seems to have escaped the beneficent and benevolent eye of humanity up till now. We refer to the indigent aged. There are hospitals and homes, there is a distinct literature, there are conventions and conferences for apparently every other class of people in the world—but for the aged, there is a waiting place for eternity, and an infinitely small niche in the hall of oblivion.

But now there seems to be a new day for the aged. They seem to be human, even as you and I, and entitled to at least a casual survey at the hands of trained and sympathetic students.—The Modern Hospital, July, 1917.

## Book Reviews

**First Lessons in Spoken French for Doctors and Nurses.** By Ernest H. Wilkins, Algernon Coleman and Ethel Preston. Chicago. The University of Chicago Press. 1917. Price 50c.

This seems to be a useful little pocket aid in learning the elements of medical French. A man who carries it about him and studies it in his spare moments should, with a little practice in pronunciation, be able to pick up enough French to make himself understood. L. E.

**The Kingdom of the Mind.** How to promote intelligent living and avert mental disaster. By James Mortimer Keniston, M. D. New York. G. P. Putnam & Sons. 1916.

This book takes up in a very readable way the factors that make for a wholesome mental existence. While no new ideas are brought out, the work thoroughly accomplishes its purpose in giving to those interested in mental hygiene a clear, entertaining account free from confusing theories and technical phrases. H. G. M.

**Handbook of Suggestive Therapeutics and Applied Hypnotism.** By Henry S. Munro. 4th ed. St. Louis. Mosby Company. 1917.

This book is a complete manual and an instructive exposition of applied psychotherapy. It deals with the latest advances of this much neglected subject and gives practical advice, not only to the specialist for nervous and mental diseases, but to the general practitioner as well. The book fascinates the reader with its many interesting demonstrations and scientific explanations of facts taken from daily medical practice; facts which have hitherto grossly been overlooked by medical men. It is well written from a literary standpoint, and easily intelligible. A. G.

**The Treatment of Emergencies.** By Hubley R. Owens, M. D., Surgeon to the Phila. General Hospital; Asst. Surgeon to the Phila. Orthopedic Hospital and Infirmary for Nervous Diseases; Chief Surgeon to the Phila. Police and Fire Bureaus; Asst. Surgeon Medical Reserve

Corps, U. S. Navy. 12mo volume of 350 pages, with 249 illustrations. Philadelphia and London. W. B. Saunders Company. 1917. Cloth \$2.00 net.

A surgical monograph dealing in a simple and cleancut style, with the usual emergencies that are encountered in a large city.

The text comprises a series of lectures that the author has given to many pupil nurses and the members of the police and fire departments of Philadelphia. Dr. Owen manifests a clear understanding of just how much the average student of first aid is able to master. The procedures recommended are simple and practical. This book will be of extreme value to any physician giving lectures on emergency treatment and the training of medical corps men.

A great many procedures described are of much value to every doctor, particularly in the chapter on transportation of injured persons. The warning that many simple fractures are compounded by improper handling and that lives are lost by hauling injured persons to a hospital when they could be saved if proper first aid treatment were given at the time of the accident, is fitting. The illustrations are appropriate and very instructive. The definitions are short, not technical and well suited to work on first aid. E. B.

**New Method in Diabetes.** By J. H. Kellogg, M. D. Battle Creek. Good Health Publishing Co. 1917. Price \$2.50.

The new method in diabetes by Dr. Kellogg, as stated in the preface, is intended for the use of nurses and patients, but as a matter of fact, it is in many places certainly beyond the mental range of the layman. At the same time it contains so much valuable material put in such excellent form as to be of decided advantage to the general practitioner of medicine. The book does not purport to go into the minutiae of the pathology of diabetes, or to summarize the bases of the recent advances in the theory of treatment, but it does give in very succinct form a good explanation of the grounds for the Allen method and provides in the form of tables and recipes an excellent groundwork for the daily treatment of diabetes. It is probably true that few other classes of cases give more trouble to the physician in the matter of directions than does diabetes. Dr. Kellogg, by the excellence of his charts, and the descriptions of 130 dishes suited to the dietary of diabetics, with the calory values of their constituents, provides an excellent escape from our usual dilemma. Did the book contain nothing else but the recipes it would be well worth a place on our library shelves.

It should be mentioned that Dr. Kellogg lays great stress on the subject of constipation and upon a correct condition of the abdominal musculature. He gives excellent directions for the treatment of diabetic cases along this line. H. D'A. P.

**Diseases of the Genito-Urinary Organs and the Kidneys.** By Robert H. Greene, M. D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and Harlow Brooks, M. D., Professor of Clinical Medicine, University and Bellevue Hospital Medical College. Fourth Edition, Thoroughly Revised. Octavo of 666 pages, 301 illustrations. Philadelphia and London. W. B. Saunders Company. 1917. Cloth. \$5.50 net. Half morocco, \$7.00 net.

The new edition of this eminently useful book will be welcomed by the general practitioner as well as by the urological specialist as a valuable addition to their library. In clear and concise language those methods of diagnosis and treatment



are dealt with that have stood the test, according to the authors' own ripe experience, while speculative views and methods unsuitable for general work are either only briefly mentioned or not considered at all. Thus the authors have attained their goal, to make the book of practical value and to base theory and practice on a sound pathological and physiologic basis.

Particularly conspicuous, in this connection, is the introductory chapter dealing with the general examination of the patient, which abounds in many useful suggestions and which, on account of the complete and circumspect presentation of the subject, is a veritable masterpiece.

The authors' views on the more recent additions to the urological diagnostic and therapeutic armamentarium (pyelography, operative cystoscopy, etc.), are, while up to date and progressive, always sane and conservative. Simplicity and delicacy, as well as practical experience, are the key-notes of the chapter on instrumental examination, the scope of which is treated in an entirely modern fashion, with the exception of two pages devoted to the description of the now obsolete urinary segregators. Consideration of the more complicated functional tests, the intricate technique of which tends to relegate them to laboratory workers' only, like the methylene blue, the polyuria, the cryoscopy tests, etc., have been eliminated from this edition, while practically commodious tests, like the phthalain, the phloridzin, the blood-nitrogen tests, are fully described.

The authors' adverse criticism of spinal anesthesia is apparently not based on extensive personal experience. Their attitude towards the value of the complement fixation test for the diagnosis of gonorrhea is rather reserved and non-committal. Such statements contained in the interesting chapter on the blood in diseases of the kidney as: "Periods of great faith in this or that test, with growing experience, have given way only to a more firm reliance on the value of the clinical picture of each individual case, taken as a problem by itself," and: "There is now a general tendency to overestimate the dangers of high blood pressure and to resort to frantic measures to artificially reduce it," amply testify to the sound teaching pervading the book. Particular mention in this connection deserves the chapter on the surgical treatment of Bright's disease, which proves the progressive spirit and, at the same time, the conservative judgment of the authors.

In the chapter on stone in the bladder due credit is given to the work of our own late Dr. Geo. Chismore, and the only discord in this connection is sounded when our general confrere, Dr. E. G. McConnell, as in the former edition, is mentioned under the "nom de plume" McCormack. But while this lapsus linguae is somewhat excusable, the reader can hardly reconcile his philological conscience to the numerous linguistically and grammatically erroneous quotations of Latin phrases and foreign references, the correction of which would certainly add to the dignity and charm of future editions of this otherwise excellent urological handbook.

The description of operations is frequently illustrated by a brief report of personal observations, by which means the text is rendered less dry and, at the same time, more instructive. Print and illustrations are faultless. It can safely be predicted that the fourth edition of the book will add many new friends to the numerous admirers it had in the past.

M. K.

## Correspondence

### AN OPEN LETTER.

You ask why I do not try Christian Science on my paralysis? There are several answers which might be given. Perhaps the easiest answer is that, from a Christian Science basis, to "try" Christian Science formulae insures failure. Absolute faith in the formulae is the key to its efficacy. That I do not possess. In fact I have absolute lack of faith in it. So you will see that, even from your own point of view, I would just as well recite the multiplication table.

I hear you ask why I do not believe in it? The easiest answer to that is, that the evidence adduced does not convince me, beyond a reasonable doubt, that it is true. I am requested to believe there is no such thing as disease. That what we call disease is only "error." My right hand trembles and is beyond my control. It does not make a particle of difference to me whether you call that a condition or disease or an "error." The evidence of my senses, interpreted and correlated by my brain, convinces me that I am afflicted by what I call paralysis. It is immaterial to me what it is called.

Christian Science tries to tell me that my senses and my brain have deceived me; that the whole thing is "error." I know of no way of gaining knowledge but by experience and observation. Christian Science demands that I discard the use of my brain and my senses. How, then, am I to gain a knowledge of Christian Science? Your tongue, my ear, my brain, are not trustworthy!! Christian Science tells me that there is no such thing as matter. That all we see, hear, touch, taste and smell is "error." Where, then, am I to get truth? Only emotion is left! I cannot conceive of emotion without sense. Where came this knowledge to the Christian Scientist? From Mary Baker G. Eddy. Whence did she get it? She says, from God!!! I believe in God. He created the world and everything in it. He did not create a lie!! The things which He created are true things. He created my brain and all my organs of sense. These are telling me the things which He ordered them to tell me. If they lie, God is lying!!! I believe the evidences of my senses in spite of Christian, or any other science!!! You say that you believe in it, and I have no doubt that you think you do. But every time you partake of food or drink, you deny it!!

Your actions speak louder to me than do your words. Bear in mind that I am not trying to proselyte you. I have not the slightest objection to your preaching and practicing Christian Science so long as you do not let it lead you unnecessarily to expose yourself to infection and contagion. If you should go to live on the island among the mosquitoes, I desire to warn you, as did the cowboy friends of "Ruggles of Red Gap," when they were compelled to sleep in the open, warn him of the terrible animal called the "High-behind." "High-behind" accurately describes the attitude of the Anopheles mosquito when at rest upon the wall; and this is the mosquito which inoculates people with malaria. If a sufficient number of them bite you, it will take a lot of Christian Science to convince you that you have not a genuine attack of "chills and fever." Look well to your screens, and keep him out and yourself in, from sunset to sunrise, for only by so doing will you be safe. Ruggles imagined that the "High-behind" was some terrible beast like a man-eating lion or tiger, and he really is about as dangerous.

Just one more word of caution and I am done with the subject. Never allow yourself to go around the community, scattering germs of disease among your neighbors and their children, lest the greatest of all "errors,"—death,—overtake them. Death is no respecter of Christian Science, as is evidenced by the fact that its founder is dead. —(Contributed by Dr. J. R. Jones, Secretary Siskiyou County Medical Society.)

**A LETTER WORTH READING.**

Eureka, Cal., July 26, 1917.

My Dear Doctor:

I have acquired the exclusive right to use in the State of California from two German chemists who recently discovered medicines that will absolutely cure Bright's Disease, Sugar Diabetes, Gall Stone and Stone in the Bladder. I am making wonderful cures of these diseases. I assume that you have many cases under treatment and are not getting satisfactory results.

I would like to correspond with you in reference to your patients and I think we can make some arrangements so that a quick cure can be made, which will result in our mutual benefit.

Thanking you for an early reply, I remain,

Yours truly,

DR. W. H. WALLACE,

By W. G. Press, Secretary.

[The letter above was sent to the Journal by the doctor who was so fortunate as to receive it from the author. It is our hope that it may afford as much pleasure to the readers of the Journal as it did to the original recipient. The following clipping in reference to the same matter will add to the reader's pleasure.]

(Eureka, Cal., Standard, Aug. 4, 1917.)

**NEW SANATORIUM OPENED IN EUREKA.**

A new sanatorium has been established by Dr. W. H. Wallace and Whiting G. Press, in the Georgeson building, for the treatment of Sugar Diabetes, Bright's Disease, Stone in the Bladder and Gall Stones.

Dr. Wallace has been actively engaged in the practice of medicine in Eureka for thirty-four years, and is one of our prominent physicians. Mr. Press has made this his summer home for nineteen years. Both are very well known in Humboldt county.

**Mr. Press a Sufferer.**

Mr. Press had been suffering from Sugar Diabetes and Bright's Disease for several years, and when he returned to Chicago last fall he learned of two chemists who have made a study for years of trying to find out new medicines that would cure what the medical fraternity considered incurable diseases. He placed himself under their treatment and was pronounced absolutely cured in twenty-eight days after starting to take the medicine. On his return here in May last, he found that Dr. Wallace was suffering from Sugar Diabetes, and he got some medicine for him, and he was cured in fourteen days. This made them feel that this was something that should be introduced in California; therefore they secured the exclusive right to use the medicine in this state, and now are treating a large number of patients with unparalleled success.

**Some of the Cured.**

Dr. Wallace has among the cured W. D. Tyron of Crescent City, who was sent home from the Lane Hospital in San Francisco as an incurable case, his analysis showing from twelve to fourteen per cent. sugar, and it only took five weeks of treatment for him to be in a normal condition, free from sugar.

Allen Johnson, a young man twenty-one years old, residing in Eureka, afflicted with Bright's Disease, showing an analysis of eighteen per cent. albumen, is now albumen free after a treatment of four weeks. This young man was sent from the Saint Helena Sanatorium home as an incurable case.

**Cured in Three Weeks.**

Mrs. McBreen of Scotia, who had been suffering years with Sugar Diabetes and showed an analysis of ten per cent. sugar was cured in three weeks' treatment.

Bright's Disease and Sugar Diabetes are both considered by the medical fraternity as very difficult troubles to cure. Gall Stones and Stone in the

Bladder can be cured in from four to six weeks without the use of the knife.

Mr. Press came here nineteen years ago for his health, having been sunstroked four times in Chicago, which made it impossible for him to live in a warm climate in summer. This being the lowest temperature in summer time has been shown by the Signal Office in Washington, therefore making it one of the most ideal summer climates in the United States.

People suffering with Sugar Diabetes, Bright's Disease, Stone in the Bladder and Gall Stones will make no mistake in coming here to be cured, and while here in summer time will find an ideal summer resort so far as cool and pleasant weather is concerned.

**State Society****IMPORTANT NOTICE—TO CONTRIBUTING MEMBERS OF THE INDEMNITY DEFENSE FUND.**

Notes are now becoming due.

Do not let your membership lapse.

Each member will be informed ten days in advance of the due date of his note.

**DEFENSE AFFORDED ONLY TO MEMBERS WHOSE DUES ARE KEPT FULLY PAID.**

Medical Defense Rules, Section 3: "Dues must be paid to the Secretary of the County Medical Society to which each member belongs prior to the end of February of each year. Any member whose dues are not paid prior to March 1st and whose name is not reported as having paid his dues by the Secretary of his County Medical Society is dropped from the list of members in good standing as of January 1st of such year, and such member is deprived of Medical Defense afforded by the State Society for the period from January 1st of such year to the date when his assessment is received by the State Society. Members whose assessments are not received on or before February 15th of each year will be notified by letter from the Secretary of the State Society of such fact."

The State Board of Health reports under date of August 4, 1917, that two human cases of anthrax were reported from San Francisco, contracted at Los Palos, Merced County, while skinning a dead cow. An outbreak of 15 animal cases in central Yolo County is under control.

The National Board of Medical Examiners held its second examination in Washington, D. C., June 13 to 21. There were twenty-four qualified candidates, twelve of whom appeared for examination, the others having been ordered into active duty between the time of their application and the date of the examination. Of the twelve who took the examination nine passed. The next examination will be held in Chicago, October 10 to 18. The regular corps of the Army and Navy may be entered by successful candidates, without further professional examination, providing they meet the adaptability and physical requirements. There will also be an examination in New York City in the early part of December.

Physicians are required to register and pay special tax at each place where narcotic drugs are kept in stock for dispensing purposes, no matter

how small the quantity. An inventory of narcotic drugs must be made for each place of registration, and the records under such registration must be kept separate and distinct from any record at another office. All narcotic drugs in the possession of a physician, including those contained in a pocket case, must be inventoried at the time of applying for registration. The records should show from which stock of drugs pocket case is replenished in order to account for their disposition when the records at any office are checked up by an inspecting officer.

Separate registration should be applied for in case a stock of narcotic drugs in any considerable quantity is kept at a summer camp. When only a small supply of narcotics is carried in a medicine case to a summer camp for emergency purposes it would not be necessary to register again, but the record at the home office should show amount and kind of drugs removed for that purpose and their disposition.

Attention is called to the editorial in this number on the "Danger of Botulism." Physicians knowing of cases are requested to communicate without delay with Dr. E. C. Dickson, Stanford University Medical School, San Francisco, Cal.

Dr. Thos. W. Huntington of San Francisco has received an appointment which reflects honor on the medical profession of California, in his election to the presidency of the American Surgical Association, which meets in June, 1918, in Cincinnati. Dr. Huntington is a member of the General Medical Committee of the Advisory Commission of the Council of National Defense, and has recently been appointed one of a mission to Italy to investigate conditions relative to American Red Cross assistance in that country.

The result of the investigation made by the State Secretary, relative to "Officers' Reserve Corps and Pensions," is in substance, as follows:

"Under the law, officers of the Reserve, if incapacitated, are entitled to a pension, and, if killed in action, their heirs are entitled to six months' pay of the grade held at the time of death. In addition, the family is entitled to pension."

This was obtained through correspondence with the Secretary of War, the Council of National Defense, the Surgeon-General of the U. S. Army, the Secretary and Chairman of the Senate, our two California Senators and eleven Congressmen, as given in the July issue of the Journal.

The question was recently raised as to what stand the Insurance Companies had taken on the matter of the Medical Section of the Officers' Reserve Corps and Military Service in the present war, and the effect on insurance rates.

We understand that at a recent conference between the Commissioners of Insurance and representatives of life insurance companies it was recommended that a war clause be adopted by the companies. This war clause states that a sum of not less than \$37.50 annually per \$1000 of insurance be added to the premium where a war hazard exists or is contemplated. This applied to applications on members of the National Guard, Militia or Naval Reserve, Officers' Training Camps, Physicians, members of the Red Cross or Ambulance Corps and men contemplating service in any of these or similar branches at the time the application is written. These applications will be entertained for amounts up to \$5000. This recommendation has been adopted by most life insurance companies, and the war clause is embodied in policies issued. It is supposed that this amount will be adequate to cover the extra hazard imposed, but as it is obvious that no one can foresee the result of the mortality of the war, it may be considered

necessary at some future time to increase this extra premium.

In some companies a provision is made for pro rata refund to insured, after the termination of the war, of any excessive amount that has been collected in the way of extra premiums, such amounts to be determined upon investigation of the mortality resulting from the war.

It would appear that most companies charge no extra premium on policies issued prior to April 8, 1917, where such policies contained no restriction as to military or naval service.

There have been no deaths from typhoid fever during the first five months of the year in thirty-two counties of California, according to the California State Board of Health. These honor counties are: Alpine, Calaveras, Colusa, Contra Costa, Del Norte, Glenn, Kings, Lake, Lassen, Madera, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Placer, Plumas, San Benito, San Luis Obispo, Shasta, Sierra, Siskiyou, Sutter, Trinity, Tuolumne, Ventura, Yolo and Yuba. The seventy-four deaths reported during the same period occurred in the remaining twenty-six counties. One-third of these deaths were in the large cities of San Francisco and Los Angeles, where about one-third of the population of the State is centered. In spite of the good records made by these thirty-two counties, typhoid is about as prevalent this year as it was last year during the same period. If California is to maintain her good record in typhoid control, every county in the state must be active in the control of the disease within the county. The State Board of Health through its Bureau of Sanitary Engineering will aid any community in improving water supplies and sewage disposal. The Bureau of Communicable Diseases will investigate extensive typhoid outbreaks and will supply physicians with anti-typhoid vaccine, free of cost. With the facilities for control that are now available, it is inexcusable for any county to have a high typhoid rate.

## County Society News

### BUTTE COUNTY.

Dr. Edward E. Baumeister has been appointed Associate Editor of the Journal.

### LOS ANGELES COUNTY.

During the early part of August a new branch laboratory for the State Board of Health will be established, to be located in the Union League Building, Second and Hill streets. The corps that will be located here will include a state bacteriologist, an assistant sanitary engineer and a district physician.

Under new regulations, the state will be divided into six districts, and a district physician placed in charge of each. The district whose headquarters will be located here will include the counties of Los Angeles, Santa Barbara, Ventura, Orange and San Diego. The other counties of Southern California will constitute another one of these six districts.

### MENDOCINO COUNTY.

At the meeting of the Mendocino Medical Society on June 9th, Dr. Oswald H. Beckman was elected corresponding editor from the county for the California State Journal of Medicine.

Dr. H. H. Wolfe of Albion has been accepted



for the Army Reserve with rank of First Lieutenant, and he may be called at any moment.

Dr. R. H. Hunt of Bartlett Springs has received word from Washington that he has been accepted in the Naval Reserve force as Assistant Surgeon, with the rank of lieutenant.

#### SAN DIEGO COUNTY.

The San Diego County Medical Society continued its regular meetings through July, the first, on July 10th, being given up chiefly to discussion of measures to conserve the practices and protect the families of the members called to the service of their country. The second meeting, on July 24th, was a clinical night held at the County Hospital, where Drs. Churchill, Doig, Little and Jennison presented interesting clinical cases. In August is scheduled a social evening and a joint paper by Drs. Jas. Jackson and R. J. Pickard on the treatment of eczema with autogenous colon bacillus vaccine.

Dr. H. C. Loos who recently left practice to accept a captain's commission in the army is now Major Loos, stationed at Douglas, Ariz.

The Medical Library has recently moved into its new quarters on the twelfth floor of the American Building, where quietude, cool air and fine north light combine to attract the student.

The San Diego Diagnostic Group Clinic continues to hold the interest and enthusiasm of its large staff of specialists and has little difficulty in securing problem cases for diagnosis up to its capacity.

#### SAN FRANCISCO.

Dr. Russell C. Ryan of the Mount Zion Hospital, San Francisco, has been commissioned as an officer in the United States Navy, and has been appointed Assistant Surgeon at the Naval Training Camp at San Pedro.

#### SAN MATEO COUNTY.

Dr. F. S. Dolley announces that building will start on a new \$40,000 South San Francisco Hospital September 1st. The hospital company will be incorporated. Plans have been perfected.

#### SANTA BARBARA COUNTY.

The doctors in the Santa Barbara County Medical Association have agreed to return to the families and dependents of the doctors of the Association who enter military service one-half of the fees from patients which these enlisted doctors leave in the charge of the doctors remaining at home. A formal resolution to this effect was passed by the County Medical Association at a special meeting.

The speakers at the meeting estimated that in the war now on the United States will need 40,000 doctors. Southern California quota of this number is about 600, or one out of every five doctors in the southern part of the state. Ventura County has about thirty doctors, counting active and retired members of the profession.

#### VENTURA COUNTY.

Dr. C. A. Jensen was made corresponding editor to the editorial staff of the California State Journal of Medicine.

Dr. Will I. Lewis has received his commission as Second Lieutenant in the Medical Reserve, has been called to the colors, and is at present taking training at Fort Riley, Kansas.

Dr. Benjamin E. Merrill has received his commission as Second Lieutenant and is waiting orders from the Government to go into training camp.

#### YOLO COUNTY.

Dr. Fred R. Fairchild, of Woodland, has received a commission as captain in the United States Medical Corps and is slated for immediate service, whether in the war zone or in the United States is not yet known.

## Military News

Dr. Joseph Catton and Dr. Chas. Levison have organized an army base hospital unit from the staff of the San Francisco Hospital. The organization has been facilitated by the active co-operation of Mayor James Rolph, the San Francisco Board of Health, Col. Edie, Department Surgeon Western Department U. S. A.; Marshall Hale, president of the San Francisco Chapter of the Red Cross; A. B. C. Dohrman, in charge of the Red Cross Supplies on the Pacific Coast; Major Thos. Huntington and Dr. Emmett Rixford, National Committeeman of Red Cross in charge of medical affairs on the Pacific Coast. The personnel includes 22 doctors, 3 dentists, 65 nurses, 10 civilian employees and 153 enlisted men. The professional personnel is made up largely of men who are or have been associated with the various services at the San Francisco Hospital. The enlisted men have come from the two State universities and business houses about the bay.

The nursing staff must be made up of graduate registered Red Cross nurses, and, while there have been numerous applications, the enrollment has been proceeding slowly because of these requirements. Miss Elizabeth Jamieson, Chief Nurse of the unit, can be reached at the St. Francis Hotel, San Francisco, by nurses wishing to enroll.

The War Service Committee of the Medical Women's National Association has organized the American Women's Hospitals for work at home and abroad. The Surgeon-General of the Army and the General Director of the Department of Military Relief of the American Red Cross have approved the provision made for service to the army and to the civil population. The work will be officially part of the medical and surgical service of the American Red Cross.

The scope of the plan is broad, including units for maternity service and village practice in the devastated parts of the Allies' countries and hospitals run by women for service there as well as for the United States army in Europe. In this country acute and convalescent cases will be treated in hospitals equipped for the purpose; soldiers' dependents will be cared for; interned alien enemies will be given medical aid and substitutes will be provided to look after the hospital service and the private practice of physicians who have gone to the front. The first units hope to go to France and to Serbia in the early fall. Headquarters have been established at 637 Madison avenue, New York City. Dr. Rosalie Slaughter Morton is chairman of the War Service Committee.

Secretary Daniels has recommended to the President for appointment as Assistant Surgeons of the Navy, two hundred and seventy members of the Medical Reserve who have passed their examinations and qualified for appointment.

Of this number eighteen are from California, as follows:

Chas. A. Ainslie, San Francisco-Danville; William W. Behlow, San Francisco; Claude E. Brown, Sacramento; Joseph I. Callanan, San Francisco;

Herbert S. Chapman, San Francisco; Rushmer C. Christiansen, San Francisco; Robt. M. Furlong, San Francisco; Ramon A. Gilbert, San Francisco; Edward R. Guinan, Berkeley; Benj. H. Hager, San Francisco; Lynn N. Hart, San Francisco; Jay Jacobs, San Francisco; Glen M. Kennedy, San Francisco; Robt. Lorentz Jr., San Francisco; Francis J. McCarthy, San Francisco; Joseph A. Owen, San Francisco; John F. Pruett, San Francisco; Marshall G. Williamson, San Francisco.

The following Californians received appointments as Assistant Surgeons of the Navy as the result of an earlier examination:

E. P. Cook, Oakland; Dunnigh Corey, San Diego; B. P. Davis, San Francisco; T. B. Dunn, San Francisco; L. Gerdine, San Francisco; O. R. Goss, Berkeley; F. G. Linde, San Francisco; L. M. Morris, Berkeley; M. J. Price, San Francisco; J. M. Reuling, San Francisco; F. H. Rodenbaugh, San Francisco; J. C. Ruddock, Ukiah; Henry Searls, San Francisco; A. E. Schmidt, San Francisco.

The following Assistant Surgeons of the Naval Medical Reserve force are on active duty or awaiting active duty in this District:

Frank Ashmore, San Francisco; C. W. Butler, San Francisco (Red Cross Hosp.); G. D. Barnett, San Francisco (Red Cross Hosp.); W. P. Blake, Los Angeles; F. J. Bryant, Soledad; H. H. Chamberlin, Los Angeles; W. E. Chamberlain, San Francisco (Red Cross Hosp.); J. F. Churchill, San Diego; Gordon T. Courtenay, San Diego; John B. Craig, Upland; J. W. Crossan, Los Angeles (Red Cross Hosp.); A. R. Dickson, San Francisco (Red Cross Hosp.); R. H. Connell, San Diego; N. F. Dorn, Los Angeles; B. Duncan, San Francisco; J. W. Ellis, Denver, Colo.; R. L. Fielder, San Francisco; Arthur Goettisch, San Francisco; T. V. Hammond, San Francisco; J. E. Harvey, San Francisco; L. N. Hart, San Francisco; W. D. Horner, San Francisco; Frank A. Hughes, Venice; R. H. Hunt, Bartlett Springs; W. P. Keene, Los Angeles; L. C. Kimberlin, San Francisco; D. B. Kirby, Mare Island; H. P. Krummes, San Francisco; R. C. Lane, Los Angeles (Red Cross Hosp.); G. P. Lindefelter, Denver, Colo.; J. C. Littel, Salt Lake City, Utah; T. F. Long, Denver, Colo.; E. M. Lindegaard, Oakland; T. R. McNabb, Los Angeles (Red Cross Hosp.); A. H. McNulty, San Francisco; J. E. Miller, Los Angeles; W. R. Leahy, San Leandro; H. L. Marshall, Salt Lake City; E. F. Milligan, Denver; A. J. Minaker, San Francisco; J. R. Moore, Los Angeles (Red Cross Hosp.); F. W. Muller, San Diego; B. J. O'Neill, San Diego; A. C. Reed, San Francisco; J. D. Reeng, Sacramento; R. C. Ryan, San Francisco; A. E. Schmidt, San Francisco; Daniel W. Sooy, San Francisco; O. B. Spalding, San Francisco; J. L. Swartz, Los Angeles; E. F. Stadtherr, San Jose; J. C. W. Taylor, San Francisco; H. H. Teter, Salt Lake City; R. W. Thomas, San Diego; H. A. Thompson, San Diego; A. B. Vogel, San Francisco; T. F. Wier, San Diego.

The Red Cross Naval Base Hospital No. 2 (Leland Stanford University Unit) has been organized and commissioned with the following personnel as officers:

Surgeon Stanley Stillman and Surgeon Emmet Rixford, Directors; Surgeon A. W. Hewlett and Surgeon Harold Hill, Medical Chiefs; Passed Asst. Surgeons J. F. Cowan and P. K. Gilman, Junior Surgeons; Passed Asst. Surgeon R. B. Tupper and Passed Asst. Surgeon W. W. Boardman, Junior Medical Officers; Passed Asst. Surgeon W. F. Schaller and Passed Asst. Surgeon T. J. Inman, Neurologists; Passed Asst. Surgeon A. B. McKee and Passed Asst. Surgeon Hans Barkan, Ophthalmologists; Assistant Surgeons Edmund Butler and L. O. Kimberlin, Assistant Surgeons; Assistant Surgeon H. L. Langnecker, Orthopedist; Assistant Surgeon G. D. Barnett, Laboratory; Assistant Surgeon W. E. Chamberlin, X-Ray; Dental Surgeon Frederick Wolfsohn, Dentist.

Surgeon John McMullen of the U. S. Public Health Service calls attention to the dangers of trachoma in recruits.

The history of European wars shows that trachoma has been a grave menace to the efficiency of the fighting forces, invaliding thousands of men and blinding large numbers of its victims.

Armies originally get trachoma from the infected civil population in the areas from which recruits are accepted, and give it back to the people, often with interest, when men are discharged who have served their enlistment or become incapacitated.

The eyelids of all soldiers and applicants for enlistment should in every instance be everted, the examination to include the retrotarsal fold, and the condition of the membranes noted in a space on the blank form reserved for this purpose.

An applicant who is found to be suffering from a well-marked trachoma should not be immediately rejected, but should be given treatment and his trachoma cured. He can then be again examined to determine whether he has resulting visual defects sufficient to cause his rejection. In this way a case of contagious disease will be eliminated and probably a good soldier gained.

The Council of National Defense states that letters have been sent to all the county committees, and special inquiries have been started through the State committees, medical section, Council of National Defense, in an effort to check up the number of medical men who have actually accepted commissions in the Medical Officers' Reserve Corps, and the reasons why commissions offered to others have not yet been accepted. Records indicate that something like 11,000 commissions have been offered and that only approximately 5,000 have been accepted. Various general reasons why more commissions have not been accepted are known, but there doubtless exist in different sections of the country special difficulties which could be overcome, and the section is making an effort to determine the exact status of the matter.

Plans for hospitals for all of the 16 cantonments have been completed by the office of the Surgeon General, and the work will be commenced by the cantonment division of the Quartermaster's Department and rushed to completion before troops are called under the selective service law.

All cantonments will have complete hospital facilities so that any of the 40,000 troops to be stationed in each cantonment can receive at once the best medical care. The hospital will have, with few variations, 34 wards, including two isolation wards. Separate barracks are to be provided for hospital internes and other employees, and special buildings for the administrative offices, power station, operating rooms, kitchen and dining-room, chapel, and other hospital needs.

The Quartermaster General's Department has sent out telegrams to presidents of 58 hotel associations throughout the country requesting the "loan" of 3,840 experienced cooks to superintend the kitchens in the 16 cantonments for the new National Army. For this work 15 civilian cooks will be required for each regiment to be formed, making an average of 240 for each cantonment.

The Quartermaster General has been authorized to organize 16 schools for the instruction of cooks for the army. The plan is to have a school for each National Army cantonment on September 1, when the mobilization takes place. The cooks for the organization of the National Army will be appointed after the army is organized. Therefore, preparation must be made for feeding the men when they are assembled at the cantonments.

There are at present four Government schools for the training of cooks and bakers. It is obvious that, in preparing to feed the new National Army, a much more extensive training must be devised. With this in view, the War Department has

worked out a plan whereby the captain of each company shall choose, out of the most likely men presented, three cooks who will be trained in school methods while the National Army is undergoing its course. This will give something like 675 enlisted cooks to each cantonment. Over these men the civilian hotel cooks will have supervision until the work is well organized.

According to "The Survey" (Aug. 4, 1917, p. 406), at least 24,000 of the 90,000 physicians of military age in the United States, Alaska, Honolulu and Porto Rico will be needed for war service, according to official announcement from Washington. Of the doctors between the ages of 22 and 55 fully 12,000 must be enrolled by October 1st, to go into camp with the new draft army and regulars.

Training camps for medical officers have been established at Fort Riley, Kansas; Fort Benjamin Harrison, Indiana, and Fort Oglethorpe, Georgia, with a capacity of 1000 student medical officers and 1800 enlisted men. Also at each camp four ambulance companies, four field hospitals and one evacuation hospital will train. At Fort Des Moines, Iowa, a smaller training camp for colored medical officers attending colored troops has been established. This camp has 550 officers and enlisted men in training. For ambulance service, a camp for 4500 officers and men is in operation in Allentown, Pa.

Training courses for medical officers last three months. In the first month they are taught the duties of enlisted men, in order that they in turn may teach. The second month covers the theory of officers' duties, and the third month their practical application in the field. Following the basic course, classes for specially qualified medical officers are given and more complete preparation for some special service, as for example, sanitary and military hygiene, or radiography, or laboratory technique.

The following-named officers of the Medical Reserve Corps are assigned to active duty and will report in person to the commanding general, Western Department, for duty; Maj. Herbert C. Moffitt, Capt. Gilbert M. Barrett, Gustav J. Bergener, and William R. P. Clark, and First Lieuts. Michel H. Etcheverry, Herman Verplank Hoffman, and George R. Hubbell.

#### NOTICE.

"Miscellaneous Nostrums," new third edition, is off the press and can be obtained from the American Medical Association, 535 North Dearborn Street, Chicago, Illinois, for fifty cents.

### State Board of Health

#### AUGUST MEETING.

The State Board of Health met in Sacramento at 8:30 a. m., Saturday, August 4, 1917. Dr. George E. Ebright, president, was in the chair. The other members present were Drs. Fred F. Gundrum, Edward F. Glaser, Adelaide Brown, Robert A. Peers, and Wilbur A. Sawyer.

A special committee on appointments reported that the persons listed below had been appointed under Civil Service to the positions named. The report was adopted. The eligible list for the positions of State District Health Officer and Director of the Bureau of Communicable Diseases had been

prepared by the United States Public Health Service on the basis of a nation-wide competitive examination.

Dr. Wilfred H. Kellogg, Director of the Bureau of Communicable Diseases.

Dr. E. D. Ward, Health Officer of the South Coast District.

Mr. R. N. Hoyt, Health Officer of the Middle Coast District.

Dr. A. F. Gillihan, Health Officer of the North Coast District.

Mr. E. A. Ingham, Health Officer of the Southern District.

Dr. R. W. Nauss, Health Officer of the Central District.

Mr. Harold F. Gray, Health Officer of the Northern District.

Miss Ida M. Stevens, Bacteriologist of the Southern Division Laboratory of the Bureau of Communicable Diseases.

No one passed in the examination for epidemiologist.

Dr. Karl F. Meyer of the Hooper Foundation for Medical Research was appointed Consulting Bacteriologist, without salary from the Board.

Permits were issued to three cold storage warehouses on the recommendation of the Director of the Bureau of Foods and Drugs.

On recommendation of the Director of the Bureau of Sanitary Engineering, temporary permits were given to the Bear Gulch Water Company to furnish water to Menlo Park and Woodside, and to the Black Diamond Water Company to furnish water to the City of Pittsburg.

Rules were adopted for the enforcement of the new milk law, Chapter 576, Statutes of 1917.

Certificates as registered nurse were granted to two nurses.

The secretary and attorney were instructed to take steps to secure a proper sewage system for all liquid wastes at the army cantonment at Menlo Park.

Miss Edna D. Porter appeared before the Board to show cause why she should not be prosecuted for representing herself to be a registered nurse in violation of the nurses Registration Act. After considering the evidence presented at the hearing, the Board referred the case to the District Attorney of San Francisco for prosecution.

Mr. Kemper B. Campbell, attorney for the Board, announced that the Supreme Court of California had denied a petition for a rehearing in the case of Boss vs. Lewis. This decision was the final step establishing the right of the State to compel counties to pay fees to local registrars of vital statistics.

Hearings were held in the food and drug cases set for this date and many of the alleged violations of the pure food and drug laws were referred to District Attorneys for prosecutions.

WILBUR A. SAWYER, Secretary.

#### HEALTH OFFICERS.

Typhoid prevention and control is most important at this season of the year. The State Board of Health has for free distribution, special bulletins pertaining to sewage disposal for isolated residences, sewage disposal for rural schools, rural sanitation, sanitation in the mountains, and fly eradication. Please indicate the number of publications upon each subject that you desire, and a supply will be forwarded immediately. Cards of instructions to persons having either syphilis or gonorrhea are also available, as well as posters regarding venereal diseases for placing in lavatories, etc.



## DEPARTMENT OF PHARMACY AND CHEMISTRY:

Edited by FRED I. LACKENBACH.

### ANTIBODY FORMATION BY THE INJECTION OF KILLED BACTERIA.

When bacteria find their way into the animal organism and begin to multiply, the first resistance they encounter is an increased leucocytosis or gathering of the white blood corpuscles at the site of infection. That one of the properties of leucocytes, and even some of the fixed cells of the body, is to ingest bacteria was demonstrated by Metchnikoff in 1883. He considered this the main and probably the only defensive agency of the body for resisting disease. This process of bacterial ingestion he named Phagocytosis from the Greek Phagein, to eat, and Kutos, cell.

It was, however, soon shown by innumerable investigators that phagocytosis is only one of a number of defense processes brought out by the animal organism in the presence of disease-producing bacteria. In fact, phagocytosis itself was found by Wright to be, to a great extent, dependent upon the preparation of the bacteria for ingestion and digestion by certain antibodies which he called opsonins.

In addition to increased phagocytosis, the cells composing the tissues attacked—under favorable conditions—begin to manufacture substances which have the power to kill the disease germs and neutralize their toxins. These substances are called antibodies.

A battle royal goes on between the bacteria and their toxins on the one hand and the phagocytes and antibodies on the other. If the phagocytes and antibodies win the patient recovers; if the bacteria and their toxins win, the patient dies.

Antibodies are cell-secreted ferments and there are at least five varieties of them, i. e.:

1. Bacteriocidins, which kill bacteria.
2. Bacteriolysins, which dissolve bacteria.
3. Agglutinins, which clump bacteria and render them inactive.
4. Opsonins, which prepare bacteria for ingestion and digestion by leucocytes.
5. Antitoxins, which neutralize the poisonous substances produced by bacteria.

Following up Metchnikoff's phagocytic theory, Wright demonstrated that the function of the antibodies called opsonins is to prepare bacteria for ingestion and digestion by the leucocytes. The name opsonin is from the Greek word opsono meaning, I prepare food for.

According to the opsonic theory of immunity, there are normally in the blood opsonins for a large variety of disease-producing bacteria. When a germ invasion takes place, tissue cells, if they are not crippled by the virulence of the organism, will immediately produce a large amount of antibodies including opsonins. In the meantime the leucocytes or phagocytic corpuscles of the blood rush to the site of invasion to repel the bacteria by ingesting and digesting them, or in other words eat them up. This the phagocytes cannot do until the bacteria have been prepared by the opsonins.

Thus, we see that immunity to disease germs is produced in the healthy animal body by the action of the disease germs themselves which have the power of stimulating tissue cells to produce antibodies. Some of these antibodies destroy the bacteria or render them inactive and others aid the phagocytes to ingest them.

The reason such cell activities in antibody production do not always follow germ invasion, is due to the activities of the germ in the involved tissues. If the germs are very virulent, are capable of secreting active ferments which adequately digest the food on which they live, these activities of the germs have such a harmful influence on the vitality of the tissue cells that antibody formation is

delayed or inhibited, thus allowing the germs to continue their ravages without hindrance, resulting in tissue destruction, pus formation or death. Antibody formation under such conditions is evidently developed at the periphery of the infected area; in tissues that are influenced by the infection but not too intensely involved. Here is where bacterial vaccines come to the rescue. By injecting killed organisms into healthy tissues, similar tissue cell activities for antibody production are aroused as when a germ of comparatively low virulence gains possession of the body. These antibodies then opsonize, agglutinate or otherwise influence the living organisms in the infected area and cause their destruction.

It is now well understood that many of the early failures in antibody production from the use of vaccines were due to the use of vaccines composed of but one variety of a certain species of germs, the vaccines not being polyvalent. We find that the immunizing power from a bacterial vaccine, composed of selected vigorous organisms of as many varieties of a given bacterial species as possible, possesses higher immuno-producing properties (antigens) than single organisms vaccines.—(From The Bacterial Therapist, July, 1917.)

### NEW MEMBERS.

Miller, Byron Y., San Luis Obispo.

Powers, Allan Raymond, Tracy.

Day, Emery C., Laguna Beach, Orange Co., Cal.

### OBITUARY.

Russell D. Adams, M.D., Monrovia, Calif.; Long Island College Hospital, Brooklyn, 1864; aged 76; for more than thirty years a resident of California; died at his home, June 11.

Peter Gregory Cotter, M.D., Los Angeles; Albany Medical College, 1867; aged 60; a Fellow of the American Medical Association; died at his home, June 16.

Daniel W. Humfreville, M.D., Los Angeles; Medical College of Ohio, 1864; aged 74; died at his home, June 23.

William Scott Keys, M.D., Los Angeles; Vanderbilt University, Nashville, 1909; aged 30; formerly a Fellow of the American Medical Association; died at his home, June 20, from heart disease.

Charles Guy Reily, M.D., Los Angeles; Missouri Medical College, St. Louis, 1883; aged 58; a specialist in diseases of the eye, ear and throat; died at his home, May 26.

Robinson, Benjamin Bodie. Died in Nevada.

Robert F. Wallace, M.D., Chula Vista, Calif.; University of Tennessee, Nashville, 1886; aged 58; formerly a Fellow of the American Medical Association and secretary of the Shasta County Medical Society, at one time member of the board of health of Redding, Calif.; died in San Francisco, June 24, from injuries received in a streetcar accident ten days before.

James Walton Wood, M.D., Long Beach, Calif.; College of Physicians and Surgeons, Chicago, 1883; aged 61; formerly a Fellow of the American Medical Association; health officer of Long Beach from 1887 to 1898; a member of the local school board for nine years; director of the National Bank of Long Beach, and local surgeon of the Southern Pacific, Salt Lake and Pacific Electric railways; died at his home, July 5.